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Notes of the Month

There can no longer be any doubt about the ancestry of man according to Professor G. Elliot Smith, the eminent anatomist, who in a lecture to the Royal Institution declared that it was a simple statement of easily demonstrable fact to describe modern man as a "big-brained ape." Man, he said, was certainly sprung from a group of apes which many millions of years ago split into two series, one from which the chimpanzees and gorillas were derived and the other from which man's ancestors sprang. Both events in all probability occurred in Africa. The study of the evidence upon which these inferences are based provides a fuller understanding of the nature and potentialities of man and human nature. The fact of the common origin of man and the apes is revealed in the amazing identities of structure. The outstanding distinctive character of man is his muscular skill, which found expression in the acquisition of speech. We can infer from the casts of the brain cases of Peking Man, Pithecanthropus, and Piltdown Man that speech came into being during the transformation of ape into man. The possession of speech enabled men to accumulate knowledge and traditional ways of thought and action, and brought them more and more under the domination of customary rules of conduct and opinion; for it is easier to borrow than invent, to copy than to think.

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Reference has been made in the Press to the late King Albert's practical interest in climbing and to his personal daring as a mountaineer. The King of the Belgians was also keenly concerned with the progress of science in less spectacular fields, and gave his name to Parc National Albert in the Belgian Congo, the sanctuary reserved for the preservation of the mountain gorilla. It was largely due to the King's personal influence that this important reserve was established, and it has enabled scientists of several nations to study the habits of this gorilla in its native haunts.

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The widespread interest in the antiquities of Cyprus should guarantee support for the movement to preserve the ancient monuments of the island. Many of the Cypriot antiquities are unique in beauty and importance, and we are glad to know that a committee has now been formed to encourage public interest in the monuments of Cyprus. Some of the antiquities require more thorough excavation, and those which have been excavated stand in urgent need of preservation and of expert examination. They range from prehistoric to Turkish times, passing through many periods including Phoenician, Greek, Roman, Byzantine, Gothic and Renaissance. It is hoped that Sir Charles Peers, President of the Society of Antiquities, and Sir George Hill, Director of the British Museum, will visit the island next spring and decide what work should be put in hand. The Committee has the full support of the Secretary of State for the Colonies and of the Governor of Cyprus, and it is to be hoped that sufficient funds will be collected to enable this important work of discovery and preservation to be successfully carried out.

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Those who are familiar with the American temperament will not be surprised to know that a balloon is being constructed in the United States which, it is hoped, will beat the record ascent of thirteen miles recently established by the Russians. The Soviet balloon *Osoariakhim* reached an altitude of thirteen miles; the American balloon is expected to ascend to a height of fifteen miles. Professor Piccard, the Belgian physicist, was the first to make a successful flight into the stratosphere ,and his observations of the

cosmic rays in the upper atmosphere were of much scientific interest. The Russian ascent had a similar object and it was also concerned with photography from a height by means of the infra-red method. It is perhaps inevitable that the record-breaking element should enter into this field of scientific enquiry. A Belgian balloon reaches a height of ten miles, a Russian balloon caps it by three, and at once an American balloon is constructed to establish a new record. *The Times* observes that " perhaps the best of all results the Soviet ascent could achieve would be to stimulate others to even greater heights " ; and no doubt it is right, since the higher the balloonists ascend the more they will probably learn of the upper atmosphere. But we hope that a novel and highly important branch of scientific research will not suffer the indignity of being turned into an international contest for the greatest height.

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With the April number *Discovery* will celebrate another anniversary. It is fourteen years since this journal was established to form a link between the specialist and the layman, to interpret for the general reader discoveries in many branches of knowledge of which he might not otherwise hear. Public interest in the progress of science was never keener than it is to-day, and readers of *Discovery* will look forward to a special feature which has been arranged for next month. This is a symposium entitled " Science To-day and To-morrow " to which eight distinguished scientists will contribute. They will briefly review the latest progress in their own subjects and will give some indication of the " next step." The symposium will embrace the following subjects : *Anthropology*, by Lord Raglan, President of the anthropological section at last year's meeting of the British Association ; *Astronomy*, by Professor Herbert Dingle, who has lately returned from the United States, where he has been conducting important new research ; *Archaeology*, by Dr. J. L. Myres, Professor of Classical Archæology in the University of Oxford ; *Biology*, by Dr. Charles Singer, Professor of Biology in the University of London ; *Exploration*, by Maj.-Gen. Sir Percy Sykes ; *Geology and Plant Life*, by Dr. A. C. Seward, Professor of Botany in the University of Cambridge ; *Medicine*, by Dr. T. R. Elliott, Professor of Medicine in the Royal College of Surgeons ; and *Physics*, by Professor A. O. Rankine, of the Imperial College of Science, whose contributions to recent progress have been notable.

Next Month.

" Science To-day and To-morrow " is the title of a symposium to be published in the April anniversary number of *Discovery*. Eight distinguished scientists will review the latest progress in their own subjects and indicate the " next step." Details appear on this page. Copies of the April number should be ordered well in advance.

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The series on contemporary design is concluded in this issue with an article on the trend of modern painting. Like modern sculpture, it is a highly controversial subject and one which needs to be approached with the utmost care. Our contributor makes his own criticisms of some modern movements, but he deals sympathetically with work which is sincere. It is not the function of *Discovery* to take sides in a question of this kind, but we are glad to present the views of a distinguished painter who deals fairly and soberly with a question of keen public interest, and whose article is not marred by the pretentious jargon so unfortunately characteristic of art criticism. The Dean of St. Paul's is among those who take a decided view of modern art, and his lecture on " Ruskin and Plato " to the Royal Society of Literature will have been heard with glee by critics of the sterner kind. " Would," he said, " that Ruskin were alive to chastise, as he alone could, the modern criticasters who despise Greece and Italy and find their models in the crude productions of savages ! "

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Whatever the critics may say about the inefficiencies of the telephone service they cannot deny the determination with which the Post Office endeavours to live up to its slogan, " Make life easier." The automatic telephone, satisfying as its complicated ingenuity undoubtedly is, has not been an unqualified blessing. Distinguishing between buttons A and B, deciding when to press either or both, and noting the individual significance of the baffling variety of sounds, respectively described in the official instructions as " buzzes and burrs," is not, perhaps, entirely suited to the British temperament. But all these complications are to be banished by the " autodial," which will enable subscribers to call their friends by a simple depression of a lever, without rotating the dial. The apparatus is contained in a box which is to be supplied without delay to subscribers on the automatic system.

Scaling Peru's Highest Mountain

By H. Borchers, D.Sc.

Leader of the Huascaran Climbing Expedition.

Huascaran, one of the highest mountains in the American Continent, has long defied the attacks of mountaineers, although its ascent has been attempted on many occasions. This treacherous peak has at last been conquered by a German expedition, and the following is a graphic account of their achievement.

HUASCARAN is the highest mountain in Peru as far as we know to-day from scientific measurement. Second to Aconcaqua (23,500 ft.), the monarch of South America, it is one of the highest peaks in the whole American Continent. Indeed, it might take third place, but of this we are not quite certain because there still remains some doubt about the true altitudes of giants like Arro Mercedario, Llullaico, Ampato, and others. According to Larminat, the engineer of the projected Santa Valley Railway and the cartographical section of the Peruvian Army, the figures for Huascaran lie between 22,790 ft. and 22,810 ft.; and I have little doubt myself that these figures are approximately correct.

A Treacherous Peak.

Huascaran is a striking peak but it is difficult to climb. It has its base in the West of Santa Valley, which at Yungay, our main base, lies at 8,300 ft. above sea level. The lower slopes are a series of terraces which are soft going, mounting to about 2,500 ft.; the peak then rises abruptly, the western flank being a mighty bare expanse. The mountain has a twin crest, that on the south being about 350 ft. higher than the north peak, and the upper faces are covered in snow and ice. On the north side the rock wall rises a sheer 10,000 ft. but the south peak is a well-shaped icy pyramid.

From whichever point below in the Santa Valley—at Yungay, or at Mancos or Carhŭaz on the Cordillera Negra, or elsewhere—Huascaran dominates the view. It strikes up into the blue sky, a glittering giant, its majesty and beauty creating a sense of awe. It has a history of climbing attempts. Miss Annie Peck, of the United States, made several attempts to reach the summit in the early years of the present century, and in 1908 she announced that, with two Swiss guides, she had reached the summit of the higher peak. One of the guides suffered a frozen hand, and the other a frozen foot, which had to be amputated immediately. A tragic story, which happily has its humorous side, for Miss Peck was of the opinion that the peak was 26,500 ft. high, and so she had created a woman climber's world record.

This displeased another famous woman climber, Mrs. Bullock-Workman, a capable alpinist, who with her husband had enjoyed a series of successful undertakings in the Himalaya, mainly the Nun-Kun group, and there conquered a peak of over 23,000 ft. This had then constituted the world's record for a woman mountaineer. Mrs. Bullock-Workman—and everyone must sympathize with her—promptly sent an expedition under the leadership of de Larminat from the coast (Casma) to the Cordillera Negra and from there to Huascaran, to measure the mountain. The figures were 22,780 ft. for the south peak and 22,300 ft. for the north peak. Which of the two peaks Miss Peck claimed to have surmounted I have never been able to discover in the pages of the exhaustive books she has written about her experiences. Recently it has been announced that it was the lower north peak, but from all I have read and heard in Europe and America (in particular Professor Siever's "Travels in Peru and Ecuador") I have gained the impression that Miss Peck did not reach the top of either Peak. The Indian porters have stated that she fainted on the Garganta, was carried a little way by her Swiss guide, and then the whole party turned back. It is a rather sorry piece of comedy in mountaineering history.

Getting Ready.

We had not intended, nor did we especially desire, the climbing of Huascaran to become the main task of the expedition which had other work to do. But so it happened. The inhabitants of Yungay had only the vaguest appreciation of our scientific purpose. I must say that in Europe it aroused no particular interest before we set out, as is usually the case with sober scientific effort. Thus in the minds of all but ourselves Huascaran dominated the scene, and when we arrived we were constantly asked when we intended to attack the mountain. After six weeks even local interest faded: no one now believed we would do any climbing at all. Our acquaintances, of course, were polite; we heard no comments, but we learnt a great deal from our porters later. We did not permit ourselves, however, to be influenced by the opinions of others, especially since by subtle inquiry we had learnt that it was far too early in the year to

make an attempt on the peak yet, for the snow was still heavy and there was great danger from avalanches. When we did get our porters together they had to be exercised to give them confidence in the coming work. We had, too, to sort them out, the weaklings being discharged, while the sound men were made familiar with our methods.

The Start.

In unfamiliar mountains it is always advisable that a peak selected for attack be reconnoitered from every side. The line offering the most advantageous terrain must be carefully observed, glacier off-breaks noted, where and how often breaks occur, and the climbing line decided on should be negotiated as far as possible. At the beginning of our move we were inclined to underestimate, or rather we miscalculated, the difficulties of Huascaran ; we did not reckon with a South American peak similar in formation to those in Central Asia. After our wait we at last enjoyed a long stretch of fine weather, and on our return from the Cordillera Negra we decided to start promptly on the march to Huascaran.

The party consisted of Dr. W. Bernard, Erwin Hein, Hermann Hoerlin, Erwin Schneider and myself, with nine porters and two muleteers. Drs. Kinzl and Lukas rode away northwards at the same time intending to carry out research work. On the first day we climbed to an altitude of about 12,000 ft. The last 1,500 ft. were really difficult. As soon as we left the cultivated lands behind, we entered dense bush forest. At first we were able to follow the overgrown track of a neglected pathway which ran up to the deserted silver mines, and the animals suffered torture until we came out on the broad back of an old moraine. The valley beyond, in which we had hoped to find some pasturage, was covered with thick kinoar woods and not a scrap of vegetation for the animals was to be found. Next day the poor beasts had to be sent back into the valley since no fodder could be obtained for them here. Our camp here would have been satisfactory were it not for the fact that we had to go half an hour's journey to fetch water over awkward ground.

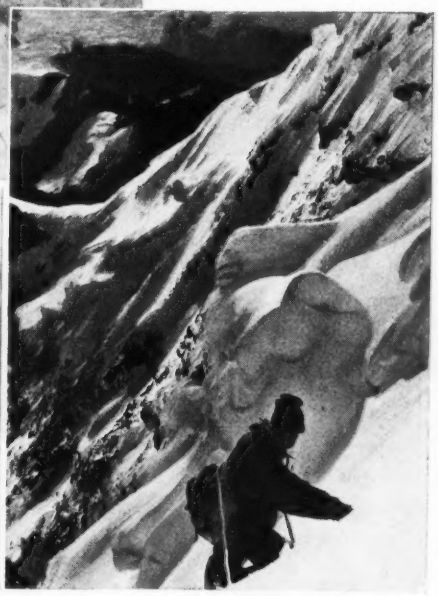
As we pushed on higher, sometimes through shadowless woods, sometimes over rocky or mossy slopes, our burdens pressed upon us more heavily. At one spot an eagle sat watching this unaccustomed invasion of his solitude. After fatiguing effort we reached a moraine through which a small brook ran, but from here the way led over a field of large stone rubble and smoothly polished rocks until we approached 16,000 ft., when we decided to pitch the tent for the night. On the third day the march over the glacier began. Hein and Schneider, both accomplished ice men, led the way, seeking the best path and where necessary preparing the track for Bernard, Hoerlin, myself and three porters, all attached on the rope.

New snow had fallen, and covered the glacier ice with a thick blanket which stretched to the top. This prevented hurry, but after six hours of struggling we found we had reached 18,500 ft. above sea level. This 2,600 ft. climb over ice was quite a worthy effort for heavily laden men. We were now under a steep ice break-off which came down from the Garganta. On a large snow covered ice bed we made our first ice camp. It was away from the break-off and out of the path of possible avalanches. In order to save weight our porters had carried only the one large tent. Nine of us crept into this and strangely enough we slept very well.

It was clear to us next morning when we started off that the climb would be stiffer and more dangerous with every yard of rise. It turned out to be harder even than we had anticipated. The marching order was as before : Schneider and Hein had to cut out steps in the ice for the less exercised mountaineers. We worked a way throughout a field of ice-blocks, walls and towers which we shall not forget, and on some of the spurs we crept by narrow ledges with long steely icicles above threatening to drop and pin us to the path. Again we were obliged to negotiate some ugly ice-chimneys and once we came to a dead-end when we had no idea which way to turn. Schneider and Hein turned left and attacked an ice-wall with their picks in the hope that we might be able to crawl through a hole safely. But, when they had pierced the wall the top buckled and threatened to cave in, and beyond was a vertical drop and a series of impossible ravines.

A Perilous Climb.

We turned round to seek some other way, and discovered a very stiff and awkward chimney which, however, was less terrifying than the terrain beyond the hole in the wall. Gingerly crossing a snowbridge against a wind offering tremendous resistance to our efforts, we suffered minor mishaps : a porter lost his hat, and just beyond another fell over an old snow slope. But Bernard held him to the rope and hauled him back to comparative safety. At last we experienced a little luck, and we badly needed it to raise our spirits. None of the many ice-towers and walls toppled over on to us, every snowbridge we crossed held, though our porters could not conceal their anxiety. On this day we managed to climb less



(*Above*) *Placing the Peruvian flag on the summit.* (*Centre*) *Climbing the Garganta precipice.* (*Below*) *On the broken glacier under the Garganta.*

(*Above*) *A fine view of Chopi-Calqui* (22,300 *feet*). (*Below*) *The treacherous climb across the ice flank of the same mountain.*

than 1,500 ft., but we were satisfied to have reached this height without serious accident. Night was upon us, and our porters were utterly exhausted, so we had to camp in a nook which appeared to offer some protection from the wind. But the storm soon swirled round us, and we lay awake in the tent fearing every moment that it would be whirled away.

Making for the Peak.

The next day's climb was to take us to the peak. Dawn came with no abatement of the storm, and it was so cold that it lamed us. It was dangerous to creep out of the sleeping bag before the sun rose high enough to temper the cold. So that we were very late in turning out. For a long time the south peak blanketed us from the sun, and it was 9.15 a.m. before we could get on the move. We rapidly topped the Garganta, an advance of 1,000 ft., and had not the slightest trouble with heart or lungs. But the crisis was approaching. The wide snow shield which ran to the summit appeared to be fairly smooth, but we had to cover 1,400 ft. in deep snow. The snow was the worst obstacle. There was a thin crust of ice on the surface. As we trod carefully on it, it appeared to hold but as we lifted the weight of the body on to the foot, we broke through helplessly into soft powdery snow up to the knee. The clouds were also a nuisance and we panted along in a misty veil; there was no wind to disperse the clouds, but the sun's rays came struggling through, and as we were clad in specially warm attire, the heat became oppressive. Then there came a sudden squall when the wind pierced even the thick clothing.

Our spirits began to waver, and we tried to spur ourselves on with thoughts of the glory of the achievement if our object were accomplished. But as the effort became more painful I began to count my steps. After each two hundred paces we took a short rest. These pauses became shorter as we neared the summit. We had brought no oxygen with us, and we are of the opinion that it is not necessary up to 23,000 or 24,000 ft., and that it is better to climb without the addition of such apparatus to the pack.

In the afternoon, shortly before 4 o'clock, the first man on the rope reached the summit. Bernard and I did not set foot on the top until several minutes after 4 o'clock. The last effort was not by any means in the nature of a cavalry attack, rather it was like the crude effort of a fagged infantry detachment. As the last man crawled over the ridge, those who had already attained comfort laughingly beckoned him, while Hoerlin tried to take a picture and succeeded in registering our last weary struggle on the film.

As we stood high above the world we realized in spite of our exhaustion that we had succeeded! Hardly had we reached the peak than we set to work to raise our standard on a pole which we fixed firmly in the soil. The views we had anticipated in our exalted position disappointed us, for all around were clouds. At this altitude we could not remain all night in the open without tents and equipment, and if the light failed we should have found it impossible to stir. We hurried to take advantage of what light remained, for the sun sets quickly in these tropical regions. As soon as we could we slipped over the slope and made ground as fast as safety would permit on the way back to the last ice-camp. We had not reached it when the light went out like a dying oil lamp. Bernard and I were standing on the Garganta and we seemed to step suddenly into a patch of complete darkness. We had no lantern. The candles had foolishly been left behind to ease weight. We felt our way along the ridge hoping to find a path, but suddenly the ridge fell away under our feet—beyond was just space.

We knew by the calendar that the moon could be expected about nine o'clock though probably the South Peak would throw an inconvenient shadow. And so we sat, huddled together for warmth. The cold was increasing (—15° to —20° C.) and it was eleven p.m. before we could move, when we were almost frozen to death. As soon as possible we got to a jutting spur, crossed a snow bridge and scrambled down towards the camp. During the night and all next day the storm raged, rising to a hurricane, and the wind tore at our tents. After two days we were able to break camp and commence the further descent. In another day we arrived at the main camp where we had to wait for the muleteers before we could set out for Yungay. Here, however, no one would credit our success until Director Seyffart, of the Colegio Nacional in Huaraz was able with his 44-fold telescope to distinguish the Peruvian flag which we had planted on the topmost crest of Huascaran.

Discoveries in Iraq.

We are glad to learn that Mr. M. E. L. Mallowan has now been able to bring to England the proper share of the discoveries made at Tal Arpachiyah, near Nineveh, by the expedition under his leadership. The excavations, under the auspices of the British School of Archæology in Iraq (Gertrude Bell Memorial) were described by Mr. Mallowan in *Discovery* last December. After the death of King Feisal, difficulty had arisen about the removal of some of the finds.

Hunting Seals in the Eskimo "Kayak"

It is only in the last two years that Europeans have learned to construct and manage the "kayak," or native canoe, which the Eskimo has used with skill for centuries in hunting seals. The ability to manage these boats will be a distinct asset to the polar explorer in the future.

SEAL hunting by means of the kayak (native canoe) and harpoon is an essential feature of Eskimo culture, especially in regions where the occurrence of moving pack-ice renders other forms of hunting the seal difficult or impossible. Their ability to construct and manage this type of boat has long been a source of wonder to Europeans, who have been content until quite recently to consider the art of kayaking as unattainable by them, and indeed unnecessary.

The successful use of kayaks on the two Watkins expeditions to East Greenland has now introduced a new element in arctic exploration, and has made the ability to use a kayak a useful addition to the qualifications of a polar explorer. It has been found that Europeans can become as expert in the management of a kayak as the Eskimo, and that by making use of the native method of hunting, it is possible to "live off the land" to an extent never dreamed of by earlier explorers. But the experience gained during the British Arctic Air Route Expedition has shown that it takes a long time to learn kayaking in cold water, and it also takes a long time to have a kayak built. An interesting article on the Eskimo Kayak appears in the current number of the *Polar Record*.

Hunting Seals in the Eskimo Kayak: this photograph was taken on the Arctic Air Route Expedition.

It is recalled that before the air route expedition demonstrated the value of learning the art of kayaking, the only Europeans to attempt it had been Nansen and his companions after their crossing of Greenland in 1888, while waiting at Godthaab for transport back to Norway. But they never mastered the art of rolling, and when hunting, always made use of an outrigger, to prevent any possibility of being overturned. Kayaks were also used by Nansen and Johanssen during their famous journey from the *Fram* in 1895-96.

Eskimo kayaks and the method of rolling them were first described by Hans Egede in 1745 and it is believed that the kayak has changed very little for many centuries. Few relics of kayaks are ever found, however, and we are thus ignorant of the different stages of their evolution. Possibly the earliest complete specimen of a full-size kayak now extant is the one taken in the North Sea in the eighteenth century, and now in the Anthropological Museum of Marischal College, Aberdeen. It is described as "a canoe, taken at sea, with an Indian man in it, about the beginning of this century. He was brought alive to Aberdeen, but died soon after his arrival, and could give no account of himself. He is supposed to have come from the Labrador coast, and to have lost his way at sea."

The occupant of this kayak and other men like him, who occasionally appeared on the shores of the Orkneys and the north coast of Scotland were given the name of "Finnmen" by those who saw them, but it is now proved by an examination of the kayak and the hunting equipment taken with it, that it must have come from the east coast of Greenland somewhere along the stretch between Angmagssalik and Kangerdlugsuak. This is proved beyond doubt by the harpoon, which is of the type used to this day by the older generation of hunters at Angmagssalik. The kayak is still used by the sea-hunting Eskimo throughout the

Arctic, although along the Alaskan and part of the Canadian coast, it is giving place to the various types of wooden boats which have been introduced by Europeans. It is in the comparatively ice-free waters inhabited by some of the eastern Eskimos that the kayak has reached its highest state of proficiency both in construction and use.

The Best Kayak Men.

The best kayak men are to be found in Greenland, possibly those inhabiting the country in the vicinity of Cape Farewell, in the extreme south of the island. These men spend the greater part of the year in their kayaks, exposed to the bad weather and stormy seas of the North Atlantic. They have, therefore, evolved a different kayak technique from the people inhabiting the more northern parts of the Eskimo territory, where the kayak can only be used for a short part of the year, and where big seas, like those of the North Atlantic, are not common. While the present form of administration continues in East Greenland, the art of kayaking can never die out, as the people are not allowed to become dependent on the importations of the Europeans; they are still self-respecting hunters, supporting themselves and their families by hunting by their old methods.

All the Eskimo carry rifles on their kayaks, but in the summer a seal will sink as soon as it is dead. The hunter must therefore get within harpoon range before attacking it, and many of the more expert hunters will harpoon their seals immediately without shooting them first. Seals are nearly always too shy for it to be possible to get within harpoon range from any kind of boat other than a kayak. This of course applies to coastal hunting in open water, and not to the hunting of bladdernose seals while lying on the pack-ice, as is done by Norwegian and Newfoundland sealers.

As any person proposing to live off the country in the north will meet with the coastal conditions rather than the pack-ice conditions, it is absolutely necessary for him to learn the use of the kayak and Eskimo hunting methods. The advantage of this is made apparent to any person reading the history of exploration in the north, with its long list of tragedies and sufferings, most of which could have been avoided if Eskimo living and hunting methods had been adopted.

In January, 1933, Mr. Augustine Courtauld of the British Arctic Air Route Expedition, presented his Eskimo kayak to the Scott Polar Research Institute at Cambridge, and a few days later an undergraduate of St. John's asked if he might take measurements of it in order to make one of his own. He had finished it by mid-February, using oiled canvas instead of sealskin. Constant practice in the Cam, in the arctic weather of Lent term, enabled him to devise a means of rolling, not quite the same way as the Eskimo use, but efficient enough. He went further still, and taught himself to execute the roll with the throwing stick instead of the paddle, and finally with the hand alone, a feat which only a very few of the Eskimo can manage. In October the returned members of the late Mr. Watkins' Lake Fjord Expedition, who are skilled kayakers, were in Cambridge, and were much interested to hear of the local developments. They brought their Eskimo kayaks and they spent many hours on the river, comparing styles. "Slow motion" films were taken of the different methods and of the trick rolls, and as these were mostly taken from a high diving board, they show, better than any diagrams or verbal description, the movement of the paddle in the process of rolling.

The Eskimo builders, dependent as they are on what drift wood they can find, use some very skilful jointing, and as few lashings as possible, the framework being held together to a large extent by the tautening of the sealskins which are put on wet, dried to secure contraction, and then treated with blubber and fat. They use no measurements, all the dimensions being estimated by eye, and on account also of the comparative scarcity of wood, no two kayaks are exactly alike.

It is explained in *The Polar Record* that the term "rolling the kayak," used to describe the action of setting the kayak upright again after a capsize is an unfortunate one, implying as it does that the process consists of the man sweeping round under the water, and using such momentum as might be attainable to aid in righting himself. In practice the property of momentum does not come into the matter at all, and it is actually easier to pause in the upside-down position before making the motions for righting oneself, and it should be possible to come up in the same direction as that from which the capsize took place.

The Art of Rolling.

It is very easy to forget that the art of rolling the kayak, so often practised as a trick, is indeed the essence of kayak hunting, since without ability to right the kayak, the hunter would be drowned at the first accidental capsize. Strangely enough, many of the Eskimo themselves never learn to roll, and need always to hunt in couples, one man to rescue the other if necessary. It is estimated that more than half the deaths among the Eskimo men in East Greenland are due to drowning in kayaks.

Anthropology and Herr Hitler.

By V. Gordon Childe, B.Litt., F.S.A.

Professor of Prehistoric Archaeology, University of Edinburgh.

In Germany science has always been taken seriously, and the Third Reich professes to base its political philosophy on the deductions of prehistoric archaeology and anthropology. We have invited Professor Childe to explain how far these deductions accord with those generally accepted outside the Reich.

THE following statements by leaders of the Reich may be taken as representing authoritatively the official views on race of the ruling party in Germany. In *Mein Kampf* Herr Hitler wrote: "If we divide the human race into three categories—founders, maintainers and destroyers of culture—the Aryan stock alone can be considered as representing the first category." Dr. Frick, Minister for the Interior, expands the same ideas in a circular issued last May to all educational authorities in Germany. On the one hand he writes: "The history of Europe is the work of people of Nordic race . . . A decisive influence on the history of Hither Asia was exercised first by the Indians, Medes, Persians and Hittites, originally of Nordic stock . . . who were eventually overwhelmed by the forces of foreign blood after they had created high civilizations in Persia and India." (Comments on Greek, Roman and Mediæval history are in the same strain.) On the other hand, "race represents the soil (*Urboden*) from which spring all fundamental characters both of individuals and of peoples. . . . Even in the Ice Age distinct races were the bearers of specific cultures."

The inference was drawn by Dr. Frank, Commissar for Justice, in a speech at Nuremberg: "The blood-substance of the Germanic race constitutes so pre-eminent and unique an asset of the world as a whole that we should be justified in counting it the duty of the entire human race to safeguard this basic Germanic element; for we know that from this racial substance have issued the highest achievements of man."

Three Main Ideas.

One may distinguish three separate postulates inspiring these passages—the supreme importance of hereditary racial characters as moulding factors in history, the superiority of the Nordic over other races, and the identification of race with language and culture. These ideas must be examined separately and in the inverse order. But their combination can only be understood by reference to the historical development of anthropology and philology during the last two centuries.

The racial interpretation of history can be traced back to eighteenth century France and to the struggles of the nobility against the centralizing tendencies of the Crown. Boulainvillier traced the pedigree of the nobles to conquering German tribes. But when he extolled their "love of liberty and jealousy not to accord to the king privileges above those of his ancestors," the erudite historian was not thinking of the popular liberty that was to inspire the Revolution. Nor was the race of which he and his contemporaries wrote a physical breed, sharply distinguished from a society such as a modern nation in which men of many distinct breeds and diverse ancestries are united by common speech, laws, habits and traditions. The last remark holds good equally of Carlyle and Freeman.

A New Conception of Race.

But already in their day physical anthropologists were elaborating a conception of race, modelled upon the zoologists' notions of species and varieties, as something hereditary in a biological sense as distinguished from the original legal meaning of the term inheritance. (The layman is still apt to be confused by "inheriting" his father's features, his father's religion and his father's estate.) The new conception soon came to modify the old without quite transforming it. It is dominant in the epoch-making work of the Comte de Gobineau, the *Essai sur l'inégalité des races humaines*, published in 1853. But, as in all non-specialist writings of the time, the author's idea of physical race was still tinged with elements derived from the older literary and legal usage. If biological inheritance could be distinguished from legal inheritance, it was only the re-discovery of Mendel's laws in the current century that provided an absolutely reliable criterion for distinguishing biological from social heredity, nature from nurture.

This was the *milieu* in which the idea of an Aryan race arose—among philologists not anthropologists—and the idea still retains much of its old associations. That Greek, Latin, Keltic, German and Sanskrit were all descended from a common tongue, which came to be called Aryan or Indo-Germanic, had been suggested by W. Jones in 1786 and was finally established by Bopp in 1833. Some human group must have spoken this language, and naturally the grammarians in all innocence called this group a race. Its cradle was

at first located in Asia ; Latham's idea of transferring it to Europe was scouted as the madness of an Englishman, especially in Germany. But in 1885 the identification of the Aryans with the Nordics, recognized by the anthropologists in Europe, was popularized in France by de Lapouge. In his work, *L'Aryen, son role sociale*, traces of the political bias of his eighteenth century precursors are not lacking.

A Confusion of Terms.

In Germany this identification of the Aryans with the Nordics did not achieve a popular triumph till the present century, when Gustav Kossinna turned from philology to prehistoric archaeology and anthropology. He made German prehistory, to use his own words, " a pre-eminently national science " (he entitled a book " *Die deutsche Vorgeschichte, eine hervorragend nationale Wissenschaft* "). It is largely the works of his school or of his emulators which, second-hand and popularized, have inspired Herr Hitler, Dr. Frick, Dr. Frank and the ardent youth of the Nazi movement. To them the terms " Aryan " (now used by professional philologists only for the Indians and Persians), " Nordic " and " Germanic " are interchangeable, but " Germanic " includes, of course, Danes and Swedes as well as Germans and the " Aryan cradle " was North Germany plus Scandinavia or rather *vice versa*.

The equations of race with culture and race with language are to-day patently false. One may usefully speak of a British culture and an English language. But the English-speaking authors of that culture are conspicuously diversified in physical type and notoriously a blend of all sorts of distinct strains—Flemings, Normans, Anglo-Saxons, Kelts and pre-Kelts—none of them racially pure. In the remote past, however, distinct cultures expressed in distinctive burial rites and types of pottery and implements are sometimes associated in graves with specific types of skeleton. That is, for instance, true of the long-barrow men and of the Beaker-folk in England. It is not true of the authors of the contemporary " Nordic culture " of German archaeologists. The coincidence of culture and race is really a corollary of the first postulate mentioned above, incapable of direct demonstration by itself but standing or falling therewith. Against the confusion of race with language serious anthropologists and philologists have been protesting ever since 1829 (Edwards). Max Müller's remark, " the man who speaks of an Aryan race is as great a sinner as one who speaks of brachycephalic dictionary or a dolichocephalic grammar " would still be generally endorsed to-day.

Herr Hitler's claim that the Nordics were the sole founders of culture can fairly be judged by a comparison between the " creation " of those whom his master, Kossinna, regarded as the purest representatives of the stock, those who stayed behind in the Nordic cradle, with the contemporary achievements of the Ancient East. On Professor Kossinna's own showing (*Die Indogermanen*, 1921) the " Aryan cradle "—the North European forest about the Baltic-North Sea coasts—was occupied from 10,000 to 4,000 B.C. by a vigorous population of hunters and fishers. Though well equipped with axes and weapons of the chase they were purely parasitic in their economy, practising no agriculture nor breeding animals. Soon after 4,000 B.C. began the neolithic civilization marked by great stone tombs, first dolmens, then passage-graves and lastly long stone cists. This is what German and Central European archaeologists term the " Nordic culture."

Kossinna admitted that the idea of the great stone tomb (and presumably the cereals and sheep that were thereafter cultivated and bred, since wild ancestors never grew in North Europe) was introduced from Spain, but he denied that the introduction involved any substantial immigration of new settlers. Actually Danish and Swedish anthropologists, studying the numerous skeletons from the great tombs, have found a mixed population including 22 per cent of round skulls (Nordics are supposed to be long-headed). Moreover Kossinna's dates are probably inflated. The high upper limits are supported by the geochronology of the Swedish geologist, de Geer, but the validity of his method has been effectively challenged in Denmark. For the beginning of the neolithic phase other authorities, domiciled within the " Aryan cradle," give much later dates. In *De forhistoriska Tider i Europa*, an authoritative joint production by all the leading archaeologists of Denmark, Norway and Sweden, the oldest dolmens are assigned to the centuries immediately preceding 2000 B.C. Prof. P. Reinecke of Munich, Dr. N. Aberg of Stockholm and Prof. A. M. Tallgren of Helsingfors would reduce these figures still further.

German Ideas of Nordic.

In any case during the third millennium B.C. what German archaeologists term the Nordic culture was the creation of villagers and farmers unacquainted with metallurgy. We may admire the grace and variety of their stone implements as we do those produced by the Maoris of New Zealand as late as the eighteenth century A.D. This Nordic culture may, however, legitimately be compared with those of Egypt, Mesopotamia and India at the same or even

earlier dates. The achievements of the ancient Egyptians, culminating in the Pyramid Age, are familiar. Thousands of well-preserved skeletons have been examined, but though a variety of racial types was detected, no skull has been claimed as Nordic by responsible students. (de Lapouge's assertion to the contrary must be due to the imperfections of anthropometrical technique in 1885 or more probably to pure ignorance.) The auburn hair of Princess Hetep-heres is not admissable as a " Nordic " feature.

Lessons from Excavations.

The recent German excavations at Erech have shown how during the fourth millennium B.C. the Sumerians rose from being mere villagers to the status of city dwellers, erecting monumental temples, and how in response to the needs created by the new economy they devised a system of writing and numeral notation and laid the foundations of mathematics. But even in the hey-day of Sumerian civilization, so brilliantly illustrated by Dr. Woolley's discoveries at Ur, no skulls obtained have been claimed as Nordic. (Dr. Frick will demonstrate to the pupils of Germany a Nordic element among the Sumerians on the strength of admitted agreements between Aryan and Sumerian words. Philologists, in Germany as elsewhere, have always held that these words were borrowed from the Sumerians along with the objects they denote—copper, axe, etc.).

To the third millennium belongs also the Indus civilization with its carefully planned cities, its highly developed industries and trade, its script and numeral system. The city of Mohenjo-daro yielded numerous skeletons; they included Australoid, Indo-African, Alpine and even Mongol types but no Nordics. Nor is there any hint of Aryan elements in the numerous objects of cult and religious symbolism recovered from the ruins. The Aryans may have been the destroyers of the " high civilization " of India; they did not " create " it.

Did not the organization of men for city life, the creation of the political and commercial institutions it entails, the elaboration of the myths and cults that cemented the communities constitute " a decisive influence on the history of Hither Asia "? To most British archaeologists the chief fascination of the prehistory of post-glacial Europe lies in tracing the diffusion of the discoveries and ideas originated in the Ancient East. Compelled by these undisputed archaeological facts to admit the Ancient Egyptians, Sumerians and pre-Aryan Indians as the true founders of civilization, a man of Nordic type like to present writer might feel depressed did he accept the view of race which constitutes the first postulate of Herr Hitler and his lieutenants.

In fact, however, the concept of race has been radically altered since the days of de Gobineau and de Lapouge. Living men may be classified by physical characters such as pigmentation and hair-texture as well as by stature and head-form. In the case of our forerunners we are obliged to rely mainly, and in the earliest times exclusively, on peculiarities of the skeleton, and especially of the skull, its most permanent part. Last century the ratio of head-breadth to head-length (termed the cephalic index) was regarded as a satisfactory criterion of race. Among popular writers it is still a respected fetish, but in anthropometrical laboratories its exclusive reign is over. To find valid criteria anthropologists have had recourse to the ensemble of a number of subtler peculiarities. With some high authorities this has led to a rather subjective method of diagnosis so that, while a given expert will unerringly assign a skull to its right place in his own classification, colleagues in another sphere may find it a little difficult to follow his reasoning. The biometric school, founded by Karl Pearson, on the other hand, rely on a vast number of measurements treated statistically. But to them race becomes more a mathematical abstraction, an average population, than the concrete " ground from which all fundamental characters of an individual spring."

At the same time it has been established that a mingling of physical types has been going on throughout the Old World ever since the Ice Age. " To-day," writes Professor Ruggles-Gates, " there is no such thing as a pure or homozygous race of mankind."

New Work by Geneticists.

Quite recently geneticists have been applying to human heredity the statistical laws deduced from a study of fruit-flies and sweet-peas. They have shown that the physical features used for the definition of races depend upon a number of separate factors termed " genes." In inheritance these genes are transmitted separately so that in crossing between disparate stocks—and as remarked all peoples since the Ice Age are more or less mixed—very complex results ensue. For instance, if an individual carrying genes A, B, C, mate with one carrying genes L, M, N, the offspring may be characterized by any one of eight combinations—ABC, ABN, AMN, etc. Actually the frequency of any given combination would be restricted by the phenomenon of dominance. The rules of dominance can be determined by statistical observations extended over a number of generations. They

have been worked out very accurately in the case of plants and animals that breed quickly and possess a relatively simple genetic constitution. In the case of man, who breeds slowly and whose genetic make-up is very complex, very little is known about dominance.

The results of these new notions are thus summed up by Dr. Baur in a work (translated as *Human Heredity*, 1931) which is inspired throughout by the same sort of ideas, though in a more temperate form, as inspire Herr Hitler: "Differences in the shape of the skull, structure of the brain, shape of the nose, colour of the eyes and of the hair, colour of the skin—in a work, the numberless morphological and physiological distinctions between the various races of men—depend in each case upon very numerous factors with the result that as yet we know little about the course of their inheritance."

Race is thus becoming a statistical concept from which we can deduce at most probabilities, and those not of a high order. Blood-relationship cannot be confidently inferred from physical similarities. "There is a fair probability that each of two piebald cats will have the same ancestor; with two piebald men, not known to be related, the opposite is probably true" (*Enc. Brit.*, s.v., "Anthropology.") It is at best a probability that if a prehistoric skull exhibit the same peculiarities as a modern Nordic skull, its owner possessed the flaxen hair, ruddy cheeks, and blue eyes of the modern Nordic. The probability is of the same kind, but of a somewhat higher order, as that with which you deduce from the statistics of road accidents that you will be the next victim. (In parenthesis I might remark that those who will prove that the Homeric Greeks were Nordic blondes because the Iliad calls them *xanthoi*, are merely displaying their ignorance of the Greek language; when the Greeks did eventually meet the Teutons, they used another adjective.)

Classifying Races.

But after all, the historically important characters in man are not physical but intellectual. Can these be inferred from the physical features which constitute at present the sole basis for the anthropometrists' classification of races? No one has studied this question more patiently and exhaustively than Prof. Karl Pearson. Reviewing the result of his researches in 1924 he asked, "whether any diagnosis of mental character can be made from bodily characters as determined in the anthropometric laboratories." He answered his question reluctantly but categorically: "When we come to associate mental and bodily characters, we find no correlation whatever of prognostic value." We cannot, that means, deduce the only significant characters of an individual or a nation from the sole tangible and scientifically admissible manifestations of race, Dr. Frick's *Urboden*.

That the facts just reviewed are universally admitted I cannot claim. Many have only been established since the war and are enshrined mainly in abstruse technical periodicals and often shrouded in mathematical jargon The popular writers whom alone politicians are likely to read still prefer to repeat nineteenth century common-places. Even specialists in one branch of science, like my own, are often unaware of what has been going on in the laboratories of workers in a cognate field. Moreover, it is not only in Germany that sentimental considerations are liable to disturb the objectivity of scientific judgment. Amongst an imperial people ruling over subjects of diverse hue the racial theory of history has a powerful emotional and economic appeal. Only one who has obtained his ambition and security can afford to disregard that fact.

Measuring Fog.

A REPORT issued by the Department of Scientific and Industrial Research on fog and atmospheric pollution is topical. It is stated that the presence of fog means that over 2.61 lbs. of suspended impurity is present in 1,000,000 cubic yards. Records are made by means of an automatic filter.

Public opinion, according to the report, is awakening to the fact that the "smoke pall" spread over our urban areas is not an act of nature to be tolerated as inevitable, but is the result of unscientific use of coal. Its removal is merely a question of the exercise of national forethought. The scientific investigation of the nature and amount of pollution is an important means of keeping the national conscience alive to the extent of the smoke evil.

The possible danger of fumes from motor vehicles has been investigated, but the report states that more extensive information is required. Concern is sometimes expressed about the possibility that the concentration of carbon monoxide from motor vehicles might reach dangerous proportions in congested streets. The report suggests that local authorities should consider the advisability of making occasional determinations to learn whether under abnormal conditions, such as during foggy weather, concentrations of carbon monoxide at busy traffic centres are greater than are generally supposed.

Contemporary Design—VI.

The Trend of Modern Painting.

By Alfred Thornton.

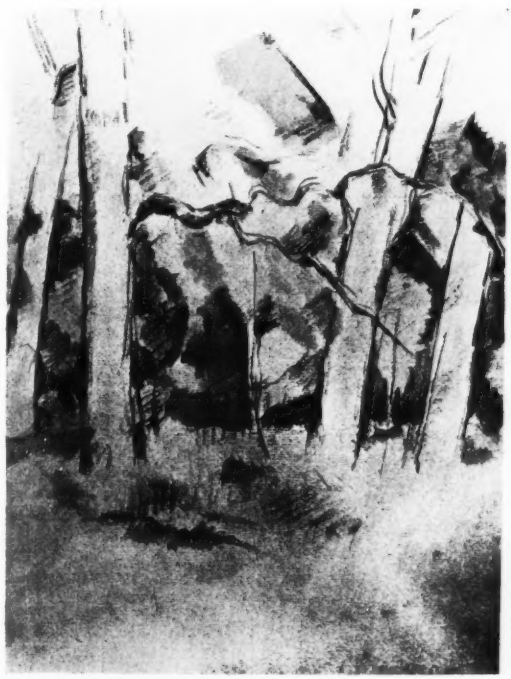
The author does not himself represent the pseudo-modern school of painters but he is a sympathetic critic of their work. If he declares that some modern tendencies result in painting which can only be so described because paints are used, he also points out that many of the younger painters are sincere in their efforts to explore new ground.

THE widespread social, economic and intellectual confusion has naturally not spared the arts. Literature is affected while music seems to be seeking security in the certainty of the instrument and turning from the uncertainty of the human voice.

Modern painting in itself is complex enough to make it difficult of understanding, and at this moment to discover any quality characteristic of the period is impossible. But in a measure to clear up the situation a few preliminary points may be touched on. First academicism is unlikely to be much affected. It will proceed on its competent but uninspired path, reaping due monetary and official rewards while the artists who make history struggle towards a late appreciation, or falling by the way reap a posthumous fame. Next the latest phase of modernism shows the same symptoms as its predecessors. There is the natural revolt of youth against the "classics," that is, against accepted art, a wholesome contempt for fellow painters of a different way of thinking, and the spice of arrogance and self-assertion necessary to individuals practising an activity concerned not with quantity but quality of which the ultimate test lies with time. Finally the latest form of modernism must not be treated as an isolated phenomenon but duly correlated to what has preceded it.

Until about 1865 art criticism centred chiefly round "subject." Diderot's celebrated "Salons" were based on data utterly different from those underlying criticisms in *The Times* and other great newspapers to-day. Subject was all important and pictures were expected to contain certain standard elements, in varying proportion of course, but considered necessary to every work of art. But about 1865 there began to appear articles that dealt with methods of expression, and emphasized aesthetic to the exclusion of literary elements in a picture. It is true that Baudelaire as early as 1846, during the battles fought round Delacroix and Romanticism, said in a critique of the Salon, "Le Romantisme n'est precisément ni dans le choix des sujets ni dans la vérité mais dans la manière de sentir." (*Variétés Critiques*. Crès, Paris.)

From 1865 onwards the new spirit grew and for the first time partial representation was accepted. Partial representation consists in emphasizing certain elements of a picture at the expense of others, and presenting them for acceptance as a complete work of art. Claude Monet and his fellow Impressionists stressed such fugitive elements as lighting and colour, leaving aside too often construction and design. Criticism followed the artists and after a time pictures were evaluated according to their success in the use of the new emphasis. The movement produced the usual crop of fanatics, and painting promised to fade out in a haze of lovely colour.



"Study of Trees" by Cézanne (reproduced by courtesy of "The Artist.")

But a reaction came in and the next phase was influenced by Cézanne, whose aims were the very antithesis to those of his predecessors, although he made use of their discoveries in colour. In place of fugitive effects he

sought to express what is permanent in nature, and his emphasis, which again was partial, lay on weight and volume ; but his sense of recession was symbolized in a way not employed since Leonardo definitely turned to chiaroscuro. Cézanne expressed the third dimension in his work by a close study of modifications in the colour of surfaces of objects as those surfaces receded from the front of the picture. And in this re-discovery may lie one of his chief services to modern painting. It is true also that he intuitively perceived that pictures are representations not reproductions of nature. Moreover in his uncouth way he felt that behind appearances there existed a reality which it was his keenest desire to express.

"*Girl and Flowers*," *a study characteristic of the work of the French artist*, *Henri Matisse.*

Meanwhile a younger contemporary, Van Gogh, fired by something akin to primitive fury, brought into modern painting the new concept of an entirely arbitrary use of colour in emotional expression. Then Matisse, less passionate than Van Gogh and more logical than Cézanne, profiting by the work of the two older masters, evolved a method of his own which fitted completely into modern conditions. With Matisse, expression depends on the whole disposition of his picture, the placing of his forms, and above all the relations between the empty spaces surrounding them. The proportions of his figures, and equally their disproportions, take part in producing the whole, and hence he evolved an art of great brilliance, but one lacking many qualities of construction belonging to the art of the past. Yet by seeking at all costs such unity of form that the eye must absorb every element in the picture at a glance, he builds up an architectonic quality that saves his work from chaos. This principle is not new and was dealt with exhaustively by Mr. MacColl about 1895.

Each phase of modernism so far considered possesses the common factor of objective vision for expressing ideas. But during the early years of the twentieth century there appeared new groups of artists who turned to subjective vision—a vision that in many cases had little to do with outward facts. And herein lies the real break with traditional painting as conceived since the Renaissance. The change in certain characteristics is almost as great as the change from Byzantine formalism to the free humanism of Nicoló Pisano and Giotto, though of course the change lies in an opposite direction—from extravertion to introvertion.

This subjectivity of vision which spread in Germany received there the name of Expressionism and met with sympathetic notice from psycho-analysts such as Pfister*, since it afforded opportunities for interesting research. The underlying impulse with men such as Munch and Nolde and their followers is shown by forms not purely aesthetic, since a poetic rather than a visual element unifies their pictures. In this they are akin to the English ; for strive as we may the clarity and lucidity of the French mind which tends to abstraction is not ours. Poetic vision as a motive is evident enough at Burlington House ; moreover English painters incline to linear rather than tonal expression. In sum the Latin aim is intellectual, seeking absolute beauty ; the Nordic (English and German) is emotional, seeking sympathetic feeling. Frenchmen recognize this and regard us with good-natured contempt. The kindly De Segonzac standing before the "Slate Quarries" one day exclaimed, "Pourquoi nous imiter ; vous avez Crome ?"

Early this century, a dictum of Cézanne set André Derain thinking, and it is to him that many of the ideas which started Cubism are due. After some experiment Derain has himself settled down, much strengthened, to a type of work based on representation, but representation governed by principles of geometric rather than atmospheric recession even in his landscapes.

The actual pioneer in Cubistic experiment is Braque, who in 1908 produced an abstract picture that interested Picasso and set him on the path which has brought him fame. No single living man has had more influence on modern art than this Spaniard who lives in Paris. He is in temperament the opposite to his

**Expressionism in Art.* (Trans.), London, 1922.

French friends, and despite the almost scientific appearance of much of his work he paints intuitionally. Picasso rarely thinks out a picture; indeed more often than not he has no idea of what he is going to produce when he begins work; only after a lapse of time can he evaluate his results. Once at work on a picture his mind almost immediately visualizes a new design, despite his rapid methods of painting. This no doubt partially accounts for Mr. Fry's feeling that Picasso lacks profundity. In Paris some are in fact beginning to question the greatness of their idol, particularly after a recent exhibition of his work in which a large measure of eclecticism appeared. Apart from Braque, who is an artist of exquisite sensibility, other and robuster followers of Cubism such as Léger, l'Hôte, Ozenfant and Metzinger show definite intellectual elements in their work, following more deliberate methods as befits the French.

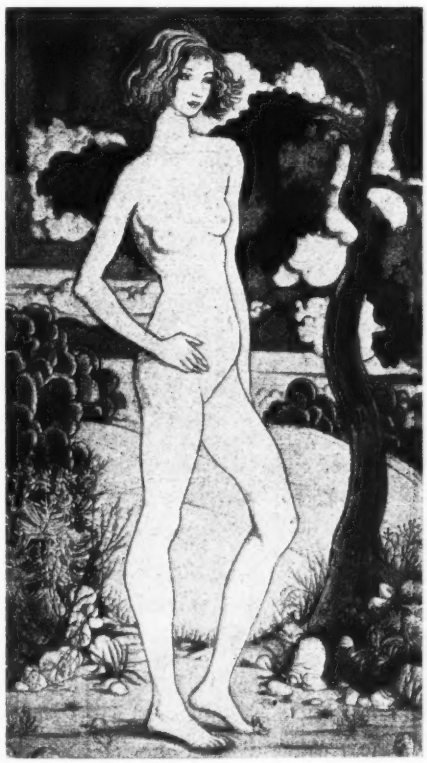
The English groups of Cubistic and allied schools include a man of such intellectual and literary power as Mr. Wyndham Lewis. Mr. Wadsworth, having passed through many phases, has definitely come down on the side of *Sur-réalisme*. Mr. Wadsworth and Mr. Ben Nicholson are artists of sensibility, and the latter shows feeling for texture, quality and colour in paint. A weakness in the English group is that, excepting the two first named, having come late into the field, their work lacks the stimulus of real discovery.

The advocates of abstract painting*—for this term fairly describes the aim of the groups into which the latest phase of modernism is divided—base Cubism on certain theories of pure form and colour enunciated by Socrates in the Philebus of Plato; they claim Plato as a Cubist since he deplored the change from archaic art in Greece to the realism of Apelles and Parrhasius, and declared the Egyptian method of placing surfaces of an object side by side flat on the plane of the picture to be a truer statement of reality. Their objection to ordinary representation is based on the fact that plurality of standpoint, that is the simultaneous representation of different sides of an object, avoids the element of chance inherent in starting from a single aspect, which dominates the rest of the work instead of leaving the artist master of the situation. The Cubists aiming as they do at organization and emphasis on space and volume have benefited orthodox painting by restoring to it qualities allowed to fall into disuse.

Emerging from Cubism there has been a further breakaway from representation and indeed from all forms of traditional art by the group calling themselves *Sur-réalistes*. These derive their theories not from Plato but from Freud, and seek inspiration from the unconscious. This "super-realism" is based on the supposition that the unconscious is greater in extent than the conscious, and consequently the area of inspiration wider and more profound.

The tenets of these groups are sometimes mutually destructive, but the factor common to all is a turning away from representative art to abstract painting, from observation to intuition, producing often a type of work that admittedly can be called painting solely because paints are used. Mr. Paul Nash in a manifesto to *The Times* last June said, truly enough, that English art as a whole lacked structural purpose, and that the aim of his own particular unit was to make good such defects. This is to be achieved without particular reference to nature, being based on subjective vision. The out-and-out *Sur-réaliste* feels life to be dull; says anything is better than being bored—"a statue quite devoid of interest in its place becomes interesting in a ditch. Hence the function of art is to upset the apple-cart, to place things where they have never been before save in dreams." (André Breton, quoted by Herbert Read.)

Artists with these beliefs, such as Max Ernst, Joan Miró and Salvador Dali are cosmopolitan, but for the most part live in Paris. Prominent in



"Nude in a Landscape," a decorative panel by Albert Rutherston.

*Chief of these in England is Mr. Herbert Read, from whose book *Art Now* certain facts in this article have been derived.

their aims are "incoherence" and "disintegration of the intellect." Since the intellect is the organ of contact with objective reality, such an aim seems in order under present world conditions. So the *Surréaliste* turns in on himself for inspiration, a proceeding which has dangers for the personality and holds poor promise for the future. Even an art so abstract as music needs frequent contact with real life to keep it vital.

The work of more orthodox painting calls for no particular comment in an article with the special aims of this. In the post-war generation the pure painter is less often found than the man who is first a draughtsman and then a painter. Even with such able artists as the brothers Spencer and John Nash this feeling for true quality in oil paint seems so secondary that one wonders why they have not preferred some form of tempera.

But a few pure painters do survive to carry on the tradition of oil painting as Steer and Sickert have done for the older generation. Included in the younger men may be the group round Duncan Grant and Keith-Baynes. As a whole this generation seem unable to hold to an impression and develop it in the sense that a Degas or Renoir could. The result is brilliant sketching but little that lingers in the memory. But some threads may be unravelled from the tangled skein of modernist painting. The dogma of complete representation once abandoned, man in his struggle for aesthetic expression, as befits a scientific age, has resorted to analysis during the last seventy years. Elements of colour and volume, and the geometric basis of art, have been successively investigated and now the unconscious factor which like the others was always implicit in great work. The drift has been ego-centric with a tendency to confuse individuality and personality, with emphasis on the former.

The Latest Phase.

The latest phase in modernism is summed up by M. Zervos when he says, "On ne peut atteindre l'essentiel des choses que par la tension extrême de 'la subjectivité. Mis en face de l'inconnu et du général l'artiste se retourne vers son intériorité, s'enfonce en elle, en prend subtilement connaissance, si bien que c'est en observant sa personnalité qu'il atteint au général, qu'il participe en une certain mesure à l'éternel. La vision ainsi envisagée exige de l'esprit qu'il abandonne ses méthodes de perpetuel contrôle qu'il invertisse l'ordre de ses réflexions critiques, bref, que par un effort de renoncement il dépasse l'entendement discursif pour se laisser pénétrer par la vision pure."

There is a mystic element here that attracts, but in modernism there appears little of the self-abnegation of the great mystics, and in England at any rate the cause is furthered by an admirable publicity campaign along most up-to-date lines. It may be old-fashioned —or may it be too new-fangled?—to say that the absence of subject dictated from outside appears to have imposed upon the artist burdens which are too heavy for him to bear, and that this is partially responsible for these restless searchings. The mediaeval and Renaissance painters had no such doubts and set about their work unquestioning, using the best technical means within their power. Michelangelo himself said that dictation from authority did not clip the wings of fancy. In reality whatever it be that sets in action creative impulse is a good subject.

Striving for Stability.

No doubt to some extent this retreat into self is due to the uncertainty and fear that is abroad to-day, and geometric forms in art may be an expression of a subconscious desire for something definite and stable. Such periods have occurred before and were accompanied by a like formalism.

According to Worringer (quoted by Read in *Art Now*) the formal patterns employed by primitive man seem aimed "to subdue the torment of perceptions, in order to obtain fixed conceptional images in place of casual perceptual images." And a certain type of Byzantine formation seems to have been influenced by religious dreads.

When the inevitable return to objective vision and to nature comes and a new synthesis in art arises the genius of the future will have a magnificent field to garner sown with the experiments of at least three generations. In the meantime since many of the most gifted of our young painters are exploring this new ground we may watch their work with interest and with sympathy when sincere. The words written in 1846 of Romanticism by Baudelaire apply to abstract painting to-day, "il ne consistera pas dans une execution parfaite mais dans une conception analogue à la morale du siècle."

This article concludes the series on "Contemporary Design." Those already published are: "Should the Modern House be a 'Work of Art'?" and "Problems in Interior Decoration" by Edward Halliday; "Tendencies in Modern Sculpture" by Alec Miller; "A Revival in Wood Engraving" by Robert Gibbings; and "The Future of Western Architecture" by Marshall Sisson.

The First Radio Teleprinter.

THE opening by the Secretary of State for Air of the world's first commercial micro-ray wireless service between the airports at Lympne (Kent) and St. Inglevert (France) marked a development of far-reaching importance in radio communications. Reports in the Press omitted to mention that the radio teleprinter was also used on this occasion for the first time. Our contemporary *The Newspaper World* points out that, although the teleprinter has been used for some years to transmit messages by land line it has hitherto been used in wireless communications for experimental purposes only. This is due to the difficulty of obtaining a wireless signal which is not only of constant strength but is also free from interference. The micro-ray system overcomes this handicap, and messages can be transmitted at a speed of sixty to seventy words a minute.

The reflectors which direct the micro-rays to the receiving station.

The new installation will ensure that aircraft crossing the Channel from either side on the Lympne-St. Inglevert route will be reported in a few seconds, and it is calculated that the movements of aeroplanes crossing on the Lympne-Alprech, and Lympne-Calais routes, should be transmitted in not more than two minutes. (Alprech and Calais are in direct telephonic communication with St. Inglevert.) Previously the average time for messages had been approximately 20 minutes and sometimes longer.

This rapid and uninterrupted communication between the two airports is made possible by the fact that the new micro-ray communication radiates less power than is required to light a pocket flash lamp, from aerials less than an inch long and operating on a wavelength of approximately 17 cms., the shortest ever put to commercial use. This compares with a normal wavelength of 900 metres for civil air traffic. The transmitting and reception apparatus at Lympne has been installed in the wireless transmission room and has been the subject of comprehensive tests with the French station at St. Inglevert before it was brought into operation. The wavelengths are slightly "staggered," a wavelength of 17 cms. being used for transmission and one of 17½ cms. for reception. This slight "staggering" enables duplex working to take place simultaneously by teleprinter and telephone.

The micro-rays employed are led to a transmitting aerial less than an inch long, and are concentrated by two ingenious reflectors into a fine pencil of invisible rays directed towards the receiving station. As the rays travel in a straight line, they can only be picked up by a suitable receiver lying directly in their path. At the receiving end the micro-rays are picked up by similar reflectors, concentrated upon another one-inch aerial, and transformed by suitable apparatus into speech currents or written words.

The micro-ray system only operates on wavelengths appreciably below one metre, and the Air Ministry chose this wavelength because it is only in this region that uninterrupted communication, free from all possibility of interference and atmospherics can be depended upon at all times.

While morse or radio-telephony can be used if required, the service will normally be carried on by means of teleprinters. These machines have keyboards like those on a typewriter, and a message typed on the machine at Lympne is simultaneously and automatically printed on a paper roll running through the machine at St. Inglevert. Thus the operators at each end of the radio circuit can type messages directly to each other, each having recorded on his own machine a complete printed copy of the whole "conversation." This facility avoids any possibility of error through a misunderstanding of the spoken word.

The commercialization of the micro-ray system is regarded as an immense step forward in radio technique as it opens an entirely new field for development. The over-crowding of the ether has seriously handicapped radio communication on the normal wavelengths, but on the wavelengths used for micro-rays there is ample room for the simultaneous operation of an almost unlimited number of transmitters and receivers without any sort of interference with each other.

Apart from obvious applications in world communication networks, the fact that micro-rays are not affected by climatic conditions, such as fog and rain, opens up interesting possibilities for greatly extending the usefulness of radio, which is at present hampered by atmospherics.

Has the African a Sense of Humour?

By Alice Werner, Litt.D.

Formerly Professor of Bantu Languages, University of London.

It has been said that the African has no sense of humour. No one has a more sympathetic understanding of the native mentality than Dr. Werner; and the stories collected from many tribes which she here relates support her contention that the African is possessed of both humour and wit.

I HAVE always failed to understand the following sentence, which I find in a cutting from a daily newspaper published some ten years ago: "It has always struck me as curious that the native African has practically no wit, while his negro cousin of the West Indies and the Southern States of America is soaked in it."

"Uncle Remus."

It is not clear whether this writer meant to draw a distinction between wit and humour—some, at any rate, of his illustrations should come under the latter heading—but he is certainly wrong in denying the possession of either to the native African. It seems strange that he should not have known, as evidently he did not, that the famous "Tar-baby" and the other stories immortalized under the name of "Uncle Remus" originally came from Africa. It is true that some of them have gained, in the process of transplantation, an added touch of subtlety. "Do fer de Lord's sake don't fling me in dat brier-patch" says Brer Rabbit. The Swahili hare, *Sungura*, declares that he can only be killed if tied up with banana-fibre and laid in the sun, and the animals, who have been sitting in judgment on him, never dream of doubting his word but treat him as directed, and see him escape when the fibres have shrivelled and cracked in the heat. Or, as the tale goes in another region, he tells them he can only be killed "on the back of the chief," who obligingly lies down and is killed by the blow intended for the hare seated on him, who nimbly evades it.

The way in which the Hare, in some versions of the story, came to his end exemplifies a form of humour, crude and elementary it may be, but not peculiar to Africa. It all arose from a practical joke—in the worst taste—of his friend the Cock, and shows, in the words of him who told the tale to W. E. Taylor, that "Harey was cunning, but he met with one as cunning as himself." (So he did in the case of the Tortoise, who afterwards became Brer Tarrypin, but their encounters never had a fatal issue.) He called one day on the Cock, who anticipating the visit, arranged to be discovered snoozing with his head under his wing, having previously instructed his wives. The Hare, seeing his friend apparently without a head, was naturally astonished and still more so when the hens informed him that their husband was in the habit of taking off his head and giving it to the herd-boys to carry with them to the pasture. They asked him to sit down and wait till the boys came home.

When these appeared they proceeded, as directed, to awaken their father and he, all affability, set to work to entertain his guest. The Hare, duly impressed, on reaching home told his wife all about the Cock's "clever device" and insisted on imitating it when his friend should return the call. The wife naturally demurred, but was overborne by his determination, and when the time came the Hare made his sons cut off his head. They bored a hole through the ears and put a string through to carry it by, while the "women" took up the body and laid it on his bed. The Cock, when he arrived, remarked, "This friend of mine is a simpleton!" but one hopes he was filled with remorse at the result of his jest. The family and their friends, however, were so struck with his cleverness that they decided he ought to inherit the Hare's property. "Uncle Remus" has a version of this story, "Brother Fox Follows the Fashion" (not in the usual collections), in which it is Brer Rabbit who plays the trick on Brer Fox, and thus the essential point of "the biter bit" is lost. Apart from this, it is not up to Uncle Remus's usual level and seems to me distinctly less good than the original.

A Zulu Tom Thumb.

The exploits of Hlakanyana, the Zulu Tom Thumb, belong to the same category of rather brutal fun, but one cannot in fairness say that his treatment of the cannibal mother (whom he induced, through the game of "cooking each other," to become a meal for her sons) or of the ogre whose hair he plaited into the thatch of the hut, was much worse than some of Jack the Giant-killer's exploits.

Huveane of the Transvaal tribes—who seems to have started life as a demigod, if not something higher—is a trickster whose doings never fail to raise shouts of laughter round the kraal fires at night. One does not know which is found most amusing, the cleverness with which he escapes the snares laid

for him—often turning the tables on his persecutors—or the exquisite idiocy of his doings when, like Eulenspiegel, of the Italian Giuccâ, he chooses to play the fool. The villagers, guided by him to a dead zebra only to see it already devoured by vultures, tell him, next time he finds an animal on the veld, to cover it with thorn-branches before coming home to announce it. On the next occasion they arrive to discover a huge pile of thorns erected over the corpse of a very small bird. "A thing like this you should tie to your belt"—which he did next day with a bush-buck, letting it drag along the ground, and, of course, ruining the skin. And so on.

Sheni, a Lamu, coming back from his work. His fund of tales never failed to raise a laugh.

A sense of humour is still more evident in some widely current tales, not involving any mythical element but presenting scenes from everyday life—a kind of traditional Joe Millers. They usually turn on the relation between husband and wife (or wives) or between mother-in-law and son-in-law. The Yao women of Nyasaland will chuckle among themselves over "The Man with the Bran Porridge," and Nyanja husbands appreciate the acumen of the man who settled a standing quarrel between his two wives by pretending to be ill and unable to touch any food except the one particular pumpkin which had been the object of the dispute. The pumpkin-vine grew in the garden of the first wife, but quite close to the boundary separating it from that of the second wife. The latter had left her water-jar close to the same spot, so that she could drink from it when engaged in scaring the birds from the crops. Now the vine sent a flowering shoot over, which entered the neck of the jar, and a pumpkin developed in due course and grew too large to pass through the opening.

Then the owner of the pumpkin wanted to get it out by breaking the jar, which the owner of the jar would not hear of, while at the same time insisting that the pumpkin must be removed. The other first suggested breaking it up and taking it out in pieces, and, then, cooking it inside the jar, but both these suggestions were angrily rejected. Even when she offered to give up the bone of contention to her rival, that thoroughly unreasonable person refused: "No! I suppose you fancy I'm a poor starved woman and would live on that pumpkin of yours!" So the husband had to intervene and did so as above stated, with the desired effect. Then the woman who owned the jar spoke to her companion, saying, "Go quickly now; go and break the jar and bring the pumpkin; let us cook it that our husband may eat."

The Yao story relates how a man was lucky enough to kill an elephant and went down to the coast to sell his ivory. His wife suggested his taking some bran* for the journey, but he replied loftily, "I don't eat bran but flour." He was lucky with his venture, and the purchaser gave him a red fez in addition to the price. When he arrived at his village there was great rejoicing, and his wife at once began to pound maize in order to prepare his porridge. But this is a long business, and he grew very hungry. When she had gone out to the stream to wash the husked grain, he snatched some of the bran which she had set aside, put it into his new fez, poured water over it, stirred it up and began to eat. No sooner had he done so than he heard his wife returning and, ashamed to be caught eating bran after his haughty declaration, he clapped the fez on his head. His wife perceived that he was hiding something and questioned him; but he put her off, saying, "Medicine that I prepared for the journey." However, the bran trickling down his face soon betrayed him, and he was driven to confess. A similar jape, from Dahomey, may be read in the collection of Dr. René Trautmann, who gives the moral "Il ne faut pas avoir de fausse honte."

There is current throughout Nyasaland the tale of the unreasonable woman who was angry with her son-in-law because the wind had beaten down the growing crops, though she had provided him with a bow and arrows wherewith to shoot it. He retaliated by requiring from his wife an equally impossible

* In Yao, *masete*, the husks left when maize is pounded. It is sometimes made into coarse porridge in time of scarcity.

task—after which no more could be said. Jests about certain towns supposed to be inhabited by congenital imbeciles—such as Gotham in England, Schilda in Germany, and Saint-Maixent in France—are to be heard in Africa as elsewhere.

A Quart in a Pint Pot !

There was the Shela gentleman who, finding that his gunpowder had become wet, dried it over the fire in a frying-pan. Another ordered a labourer to fill a large earthen jar with water and, when the man said it was full, told him to " press it down." The man, after remonstrating in vain, reluctantly obeyed and, taking up a heavy pestle, pounded away till he cracked the bottom of the jar, and the water began to run out. " There, you see ! " cried the employer, " now fill it up ! " And what roars of laughter greet the adventure of the hunter who, having snared a buck of sorts and being in too great a hurry to slaughter it ritually, tied his knife round the animal's neck and sent it home to his wife with this message, " Tell her to get you killed and cook the liver and kidneys for my supper " ; and the subsequent explanation with the wife, when porridge, unaccompanied, was set before him that evening.

These and similar tales may possibly have been imported from outside in some form or other ; one seems to recall a curious parallel to the last-named from Morocco, where it may be remarked incidentally, the citizens of Fez, the Berbers, and the mountaineers are the perennial butts. But the gusto with which they are related and listened to is enough to show that they have, at any rate, fallen on congenial soil. A product of Swahili wit, well known and quoted all along the coast, is the " Poem of the Guest " (*Shairi la Mgeni*), in which the obligations of hospitality are pithily set forth. The visitor is held to have outstayed his welcome after the third day, when he may legitimately be asked to make himself useful in the garden. If he fails to take the hint, he is no longer called to meals, and the family themselves snatch their food surreptitiously in dark corners. If so lost to all decency as to hang on till the tenth day, he is ignominiously driven out—no one could be expected to keep him after that. The late R. F. Gaunt was so pleased with this poem as to attempt a metrical translation, of which it may be permissible to print some verses here :

The first day's visit of your friend
  Set for him rice and fish,
Welcome him with luxurious food
  Spread on a hard-shell* dish.

Milk and butter the second day
  Place in front of your guest,
And out of your love increasing
  Proffer him of your best.

On the third day, in your larder
  The food is at an end,
Excepting only three measures† :
  Cook them for your friend.

Hand him a hoe and bid him dig,
  Upon the following day.
If he returns and looks for food,
  Say " Good-bye ! go away ! " . . .

* A coconut-shell, *kifuu*, in which rice is, or was formerly, sometimes served.

† Measures=*vibaba*. (A *vibaba* is about a pint.)

There is a crisp and racy quality in the original, necessarily lost in translation, and the same is true of many little popular songs, fresh specimens of which are constantly being improvised. Some of these are satirical and humorous, others serious and of great beauty, but there is this difficulty in presenting them to European readers : they need considerable expansion to bring out the meaning fully. In two or three words an African singer can convey feeling which in a European language would need a whole stanza to express it. An example which recurs to memory is the chant of the Zulu young men when beating the grass to destroy the swarms of immature locusts : " *Amabele etu !* " The words mean simply " Our Kafir-corn ! " but they contain a whole lyric of defiant challenge to the foes intent on the destruction of their crops.

The proverbs, again, which have been collected from many Bantu-speaking and other African tribes, constitute a perfect mine of wit and wisdom—but these would require an article to themselves.

Increasing the power of the Microscope.

REVIEWING the work of the Royal Microscopical Society during the past year, the President (Mr. Conrad Beck) described the results achieved as increasing the power of the microscope to an epoch-making extent. Modern developments had resulted in the observation of a new and smaller race of organisms than had hitherto been recognized. The resolution of the microscope had reached at least 100,000 lines to the inch as far back as the middle of last century. By 1860 the limit extended to something approaching 140,000 lines to the inch. But we were now able to place that resolution at a figure that is less than 1/300,000 of an inch. The contrast between small objects examined against a black background and those seen against a white background was so marked as to give visibility to many otherwise invisible features. The use of a dark ground in microscopic work had led to important discoveries in the structure of bacteria.

Taming Horseshoe Bats.

By Michael Blackmore

Two horseshoe bats captured by the author have thrived in captivity for over a year. We believe this is the first occasion on which this species has been successfully tamed.

ALTHOUGH European bats are extremely difficult to tame it is well known that the flying foxes of India will live for years in a cage and even breed in captivity. British bats, however, soon die; but there are species which are more amenable to captivity than others. Mr. Gerald Barrett-Hamilton in his *History of British Mammals* quotes a case of a Common bat which was kept alive for over two years, but he adds that the horseshoe bats were always considered intractable.

In 1907 the late Mr. T. A. Coward induced two female Greater horsehoe bats to feed, after three weeks coaxing, but even these died after nine weeks. On February 5th, 1933, I obtained a female Greater horseshoe bat from Watermouth Castle, North Devon, while it was hibernating. When I had taken it home I placed it in a large airy box into which I had previously put some twigs to enable the bat to cling with greater facility. During the first week my captive fed for fifteen minutes each day on raw liver and water, but it did not wake every evening because the temperature was generally rather low (about 36° F.).

The greater horshoe bat.
(Photo: author's copyright.)

A week later I found a male of the same species in the tower of Braunton Parish Church, North Devon. This specimen also displayed a liking for raw liver, though it would never eat more than a teaspoonful. At first the male was entirely indifferent to the presence of the female, but after a few hours the bats became much enamoured of each other and would always sleep side by side, the male enshrouding the female with his wings. I now decided to change the diet and offered the bats mealworms, which they ate greedily. As the result of this new and better food they soon became more invigorated and healthy. A month after her capture the female bat actually settled on my hand, evidently requesting to be fed. The male soon copied her example, whereupon by way of encouragement I gave them each a mealworm which they greedily accepted. In future I never had to hold either of the bats in my hand, but merely liberated them in my room and waited for them to alight.

After I had had the bats for five months I was obliged to go to London, so I took them with me. The change of residence had an alarming effect. Their uncongenial surroundings made them nervous and I had the greatest difficulty in getting them to feed. Moreover, the heat at this time was so intense that I found it almost impossible to keep the bats in a cool place. After a fortnight in London I brought the bats back to North Devon. They displayed the greatest excitement on regaining their old haunts. They darted about in great elation and settled on their accustomed perches.

Anxious to study the way in which the bats hunted their natural prey such as moths and beetles, I liberated some of these insects in my room during the time when the bats were flying. As soon as a moth or cockchafer flew a few feet the bats would swoop like falcons and strike it with their wings, carrying it away in their mouths. The beetle was then pressed against the wing or forearm to crush it and then devoured. The legs, elytra and wings were always sheared off and only the body was eaten. In the case of small moths the bats never troubled to dismember their prey, but would consume it on the wing. That horsehoe bats hunt more by scent and hearing than by eyesight is evident.

They never seemed to see their food when more than two inches away, but if a moth held in the hand should flutter, they were immediately aware of its presence and would try to take it. On one occasion a moth was lying motionless on the ground. Suddenly it commenced to flutter and the bats' attention was instantly drawn to it. Both bats immediately swooped down to the floor and tried to secure the moth, but as the insect ceased to flutter the bats neglected to capture it. After feeding, they would suspend themselves with one leg; then with the other leg they would perform their toilet.

Science and Religion—V.

Is Human Progress an Exploded Myth?

By F. S. Marvin.

In his latest book Dean Inge lends support to the view, widely expressed to-day, that human progress is "an exploded myth." Mr. Marvin takes the opposite view: he claims that the "doctrine of progress" is the most obvious generalization from all our knowledge of human history, and foresees its extension into an indefinite future.

DEAN INGE'S latest book, *God and the Astronomers*, has prompted the following article, though it can hardly be called a review. The book is so discursive and interesting that to do justice to it would take many articles, or many volumes. It may be useful, however, to pick out one theme of the multitude which crowd the pages, to follow that one a little further and more consecutively than the Dean has done, and see where it lands us. For among the many merits which make the book so readable and stimulating a few drawbacks obtrude themselves, resembling the rocks and snags in a stream which we are trying to navigate. They warn us of the depth, or want of depth, of a particular spot, and occasion some diversion of the course until smooth sailing can begin again.

Dogmatic Statements.

The two most obvious are a frequent quotation of writers ancient, or quite recent, which appear to countenance the view being put forward at the moment; and a vigour and dogmatism of statement, often about matters of the utmost complexity and doubt. This latter quality may be a valuable ingredient for moral stimulus, and as such one recognizes it with gratitude in this and many other of the Dean's books. But in some cases conclusions of a more negative or depressing kind seem to rest on an insufficient foundation, and references to life, progress and civilization tend to belong to this latter class. It is with one of the larger of these conclusions that this article will deal.

But before we touch the main theme, one or two of the depressing obstacles must be dealt with, and if possible removed. Of these the most insistent in the Dean's pages are the famous Second Law of Thermodynamics and what he refers to again and again as the exploded "Law of Progress." As to the former, one need note only that it is a physical law relating to one aspect of physics. The whole realm of physics is in our own day being so often revolutionized by new discoveries that it is in the highest degree premature and speculative to argue from the second law of thermodynamics as to the final absolute extinction of life in the universe.

As to the origin of life, and its possible renewals, we are still quite in the dark, and many of the latest discoveries in physics, so far from solving the old mysteries, only deepen them. No one for instance has been able to formulate a beginning of the system of which the Second Law of Thermodynamics describes the course. Clearly it is the part of wisdom to suspend judgment and, especially so far as human life is concerned, to concentrate on those aspects of it from which we may draw some safe conclusions. No one, one would think, would wish to cut us all off with the Second Law unless, either he had an invincible turn for gloom, or wished to divert our thoughts on human existence to another plane—the transcendental solution. We must not now revive the former character of the Dean, so no doubt the latter alternative is the true explanation of his argument.

But in this sphere of life itself there are one or two other depressing positions advanced which need some caution in negotiating. It is assumed, for instance, as common knowledge that life is a very rare and sporadic phenomenon in the universe, just as progress is sporadic and intermittent in human life on earth. But why? Surely as the universe is for our present purposes infinite—*i.e.*, there are more times as many worlds than we can now calculate—and since in the worlds of which we have acquired some physical knowledge, the chemical constitution resembles that on earth, the chances are that life in some form exists in many places. All in this field is at present speculative; but the wider we extend it, the more we increase the likelihood of life. The narrow conclusion is due to our tendency to think mainly of the solar system where, it is true, the chances of life seem rare.

What is "Progress"?

A similar argument, with a similar explanation, occurs in relation to "progress." That "progress of the whole" is an empty phrase we may well allow, because progress in any definable sense is a human thing, and humanity is far from equivalent to the universe. But that progress in this narrower and ascertainable sense is local, uncertain or transitory, is an opinion which can be defended only by a special

study of partial aspects of the process, and by a resolute preference for the darker possibilities of the future. It is a parallel argument to that which would confine the possibilities of life to the solar system and cut it off in the universe by the Second Law of Thermodynamics.

A Superstition.

This last point leads us directly to our special theme. When one reads, as one is bound to do in many places besides this book, of the "exploded superstition of progress," of the futile though amiable illusions of the pioneers of the French Revolution, of the bankruptcy of the century of hope and so on, one thinks, of course in the first place of the Great War and in the second that the doctrine, or rather the truth, which is thus lightly set aside, needs to be reinstated, cleared of the excrescences and ambiguities which have led to these attacks, and seen to be, as it is, the greatest and most obvious generalization from all our knowledge of human history. It would remain true, even if a possible comet extinguished the globe; but given the probability of a continuance of similar physical conditions its truth for the past is so clear that we may reasonably argue for an extension of this "progress" into an indefinite future. But it is essential to give the term a definite and demonstrable sense, and to adhere to it in all relevant arguments.

Clearly, whatever else it may mean, "progress" must imply some sort of change. And it is interesting to note that change—so far as we can observe it and measure its results—is far more rapid in the animate than in the inanimate sphere. We reason, indirectly and by elaborate means, about the changes which have taken place in the heavenly bodies or in the geological strata of the earth's surface. But we can actually see transformations taking place in living things before our eyes. That, no doubt, is the reason why, though the ultimate causation of living changes is remote and concealed, the visible effects have always been studied with interest and figured and speculated on by the earliest men.

Of these changes in living beings, the human, though less spectacular than the appearance of the butterfly from the chrysalis, is easily noticed and was the subject of comment from the time of the Greeks, if not before. The account of the rise of civilized from savage men, which is well known in Lucretius, is derived from Greek originals, and might be taken as a starting point for this discussion. It is incomplete because it could not take account of the profound moral change which was to be embodied in the Christian Church, nor of the corresponding revolution implied in modern science. But it is on the track of the truth, because it lays stress on the supreme importance of the city-state, *i.e.*, of a collective form of living and working which is the essence of civilization. It gives us in fact the first true mark of "progress," that it is not an individual but a social thing.

All talk about individual degeneracy, all comparisons between individual moderns and individual Greeks or Cro-Magnons, are beside the mark in a discussion of the meaning of human progress as a whole and as a definite ascertainable fact. It is the species as a whole that is in question, and the largest changes that we can discern, belonging to the species and arising from its common activity. And just as we have for this purpose to take the widest view in space, and survey the whole world which is the human habitat, so we need, to make our conclusions as striking and complete as possible, to take in the widest stretch of time. We place at the one extreme of our picture the primitive first human community, or family, and at the other, mankind now organized more or less perfectly as a whole, acting, at any rate for certain purposes, as one all round the globe.

The transformation scene contains, of course, an infinite number of particular events and individual differences which are the subject of anthropology; but it may be analysed without difficulty into two or three main aspects which are the subject of sociology—a hybrid word, as the Dean reminds us, but useful as bringing together the two languages, Latin and Greek, from which its root-conceptions arose, and in any case now accepted by students as describing a branch of study, call it scientific or not as you will—which is essential to the comprehension of the details of economics, politics and the rest. There is no instance in the history of thought where the need of perceiving the wood as well as the trees is more apparent, no case where the obvious is more inspiring and more often missed. What are the main aspects of the transformation? There are at least three, though they may all be said to be rooted in one, *i.e.*, the triumph of co-operation over isolated action.

The Development of Man.

The primitive man, just arising from the beasts, began to count objects with the help of his fingers; we are told that birds, for instance, can distinguish up to three but not to four or five. The modern man, after the change which we call progress, can measure and predict the courses of heavenly bodies which are invisible to his naked eye and from which the light which now reaches the earth began to stream before his human ancestors could walk erect. There is no

more stupendous and irrefragable evidence of the reality and meaning of human progress than this.

On the moral side the change has been less complete but quite as real. One can trace its evidence in a host of writers—Ernest Havet, Sir James Frazer, Gilbert Murray, to name the first which come into one's mind—who have shown how, from pre-historic beginnings in fear and cruelty and irrational beliefs, men have learned gradually, all over the earth, to act more reasonably, to treat one another more humanely, *i.e.*, as others like themselves, to base a policy for the future on the use of natural resources, justly divided among the whole. Though " progress " on these lines has been less rapid it is quite as clearly established by the records of the past. Justice, humanity, living for an ideal of the future, are not merely subjects for exhortation ; they are as integral a part of the human achievement as mathematics or the measurement of the stars. To trace the correlation of the two lines of " progress " is one of the most fascinating tasks for the sociologist ; its solution would do much to make up the lag which now distresses and alarms us all between the scientific and mechanical advance of mankind and its moral applications.

Mechanical Progress.

Nothing has yet been said of " mechanical " progress, which figures largely in the Dean's book and elsewhere. The term is ambiguous. As meaning the relation of science to inventions, and the exploitation of nature, it is the outward and visible sign of the first measure of progress mentioned above, the most obvious but the least profound, the most bound up with our daily life but the most dangerous in its immoral use. But there is another sense of " mechanical " progress which calls for a word of explanation. It is sometimes used to imply a " progress " or continued improvement which would go on whatever men do, and therefore an incitement to their indolent self-indulgence. No trace of such a belief can be found in the great thinkers of the revolutionary period and the nineteenth century, who first made the idea of progress dominant. Effort is always implied and often enjoined by them. Conation is a fundamental biological fact, nor do the circumstances of the present seem to make conation less essential than it always was for progress in the human sphere. The difference between those pioneers of progress and ourselves to-day was not in abstract questions such as this, but in temperament, especially in hopefulness.

We have added the still greater hindrance of a wave of depression to the spate of specialism which was beginning at the end of the nineteenth century to break up the unitary conceptions. It can best be overcome be recovering the fundamental truths in a simple and unassailable form. That they are also essential for any religious system which is to last and to lead mankind is manifest ; but here the connexions and implications are too large even to be raised at the end of an article.

Prehistoric Palestine.

From a Correspondent.

ANTIQUITIES recovered from caves at the foot of Mt. Carmel, Palestine, are now on view in the British Museum. This exhibition emphasizes the importance of the excavations carried out by the British School of Archæology in Jerusalem and the American School of Prehistoric Research. The investigation of these caves has been in progress since 1929 under the direction of Miss Dorothy Garrod, and some remarkable additions to our knowledge of prehistoric Palestine have been made. The skeletal material now available will be of great assistance in studying the physical characters of early man ; and the Mt. Carmel excavations have brought to light a new civilization and a new race to enlarge our knowledge of the Stone Age.

It has, for example, been possible to reconstruct from the material found in stratified deposits a complete sequence of the succession of prehistoric cultures in Palestine from the early Palæolithic—the Acheulean culture of the interglacial period preceding the last great glaciation known as the Würm—down to the Bronze Age, a period estimated to cover perhaps as much as 100,000 years. Characteristic implements from each phase of culture are shown. From the earlier strata have come a number of complete human skeletons of Neanderthaloid type. They differ in certain respects from Neanderthal Man, and Sir Arthur Keith therefore gives them the distinctive title of *Palaeanthropus Palestinensis*. These remains, though not the earliest of primitive man, are the earliest examples of complete human skeletons yet found.

A discovery which is regarded by some archæologists as the most important is that of the Natufian culture of Mesolithic Age. The evidence for this culture was first found by Miss Garrod in the Wady el-Natufa, whence the name of Natufian which has been given to it. With the material remains have been discovered a large number of human skeletons presenting certain characters which, in the opinion of Sir Arthur Keith, mark them off from any other known prehistoric race.

Exploring the Seychelles

By Denis Palmer.

The Islands of Seychelles in the heart of the Indian Ocean are known to most Europeans only by name. Few travellers visit this spot, a thousand miles from Mombasa, where life is much as it was a hundred years ago.

BETWEEN Africa and Asia, remote from the main land, the Seychelles Islands rise out of the Indian Ocean. Nine hundred and fifty miles from Mombasa, they lie four degrees south of the equator, neglected and almost unknown to the world. Islands of unbelievable beauty buried in tropical seas, their only links with civilization are a cable station on the main island, Mahé, the six-weekly call of a steamer, and a yearly visit by a warship of His Majesty's Navy lasting for two days. The archipelago consists of ninety islands and includes the Amirantes and Aldabra groups. Mahé is the largest and most thickly populated of the Seychelles, and is seventeen miles long and about seven miles broad at its widest point. Their population is roughly thirty thousand, most of these being French Creoles. There are only about twenty Englishmen distributed through the whole group of islands.

The islands are said to have been discovered by the Portuguese navigator, Pedro da Mascaregnas, about 1505, or by Vasco da Gama three years previously. The Portuguese, however, made no attempt to colonize them. Before the French occupation they were uninhabited and were the resort of pirates who infested the Indian Ocean, some of whose names are borne by their descendants in Mahé at the present time. The early wanderers state in their records that the bays were inhabited by enormous turtles. To-day these only exist on the smaller and more remote of the atolls.

Although Mahé was visited by an English ship in 1609, the archipelago remained unowned until Captain Picault took possession of the islands in 1742, in the name of the King of France. The French began their colonizing by settling numerous Creoles from Mauritius there; later many of these people became prosperous coconut planters. Young Frenchmen of good family also came to the Seychelles and made it their permanent home. For many years life for these colonists remained uneventful, in spite of the fact that war was waging in Europe between England and France. It was not until 1794 that their peace was disturbed, when they awakened one morning to discover that three English warships had sailed into the harbour. The French could do nothing; they had no proper means of defence, and there were not more than thirty men capable of bearing arms. They received the following summons:

"By Henry Newcome Captain of His Britannic Majesty's ship *Orpheus* and senior officers of His Majesty's ships employed in a particular service etc. . . .

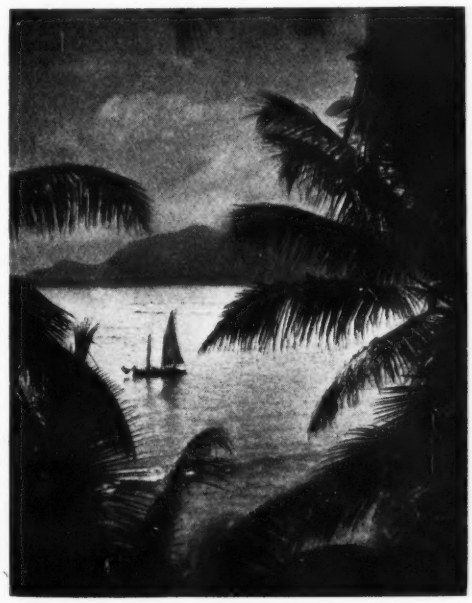
"I do in His Britannic Majesty's name demand an instant surrender of the island of Mahé and its dependencies, with everything in and belonging thereto. I give you one hour from the delivery of this message to decide. If any resistance is made you must abide by the consequences thereof.

"Given under my hand, on board of His Britannic Majesty's ship *Orpheus* this 16th day of May 1794.

"(Signed)

"HENRY Y. NEWCOME."

The French did not bother to argue, they agreed to all conditions, the English flag was hoisted and the islands changed hands.



Evening in Seychelles: a view of the Mahé Bay. (*Imperial Institute photo.*)

The next event to effect the life on the islands was the abolition of slavery in 1835. When they captured a slaver British warships were always slightly embarrassed about the disposal of the rescued slaves. As they often could not return them to the part of Africa from which they originated, they began to use the Seychelles as a dumping ground. It was very convenient. From that time to the present day conditions have hardly altered.

Although they are under the British flag, the islands remain spiritually French. The latter is the chief language spoken, and in the remoter parts of Mahé it is indispensable to the traveller.

The French colonists soon associated with the freed negroes and the Creole type began to grow numerous. To-day the Creole make up the bulk of the population ; their language, based on the French, has changed considerably and is now difficult to understand. There are still several pure French families, and they are proud of their descent. These people form an oddly mixed society quite untouched by any influence from the outside world. They are rather aloof in contact with strangers, and it was not until I had lived among them for several months that I felt I had been accepted.

The Coast of Mahé: a view from the sea. (*Imperial Institute photograph.*)

It was our fourth evening on the ship, when I was beginning to regret my sudden impulse to visit the Seychelles, that we sighted a mountain peak rising out of the sea. Its shores were fringed with coconut groves, and the whiteness of the sand gleaming between the palms caught and dazzled the eye. This was Silhoutte island, the first of the archipelago, and it is owned by a Frenchman. As the shadows turned the blue of the sea to a darkish green, we drew close to Mahé. Mountain peaks and jagged crests of hills stretched into the distance. Set among the palms under the lip of a mountain were the narrow streets and white houses of Port Victoria, the capital.

Mahé is of granite formation and its topmost peak rises over 3,000 feet. From the summit you can view many of the smaller islands, jade green set in deep blue. Everything is peaceful, luxurious, beautiful. The whole island is mountainous and really consists of an upthrust of these granite masses above the sea, with a narrow flat strip about a quarter of a mile wide circling them. The bulk of the population lives on this coast belt. From Mount Seychellois, the highest peak, you obtain a fine view of Port Victoria straggling up the steep sides of the hill. It is the capital and only town in the Seychelles, and is the centre of civilization for a group of islands some of which are 700 miles away. It is built round a harbour, and has a long pier jutting out past the lagoon into deep water. It boasts a Carnegie library, a club, two hotels (!), a fish market, a host of Catholic churches, and a Governor's residence. The town is lit by electricity, but other amenities which it lacks include banks, railways, telephones and cinemas. Nobody seems to regret these omissions, and the visitor is at once impressed by the basic cheerfulness of its Creole peoples.

The chief occupation in Mahé is coconut planting, and the sides and tops of the mountains are covered with palm groves. As the trees climb higher, they naturally become less fertile and more stunted. At one time vanilla was largely grown, but now the production of this commodity is almost wholly confined to Praslin Island. Cinnamon grows wild all over the hills, and the leaves and bark are collected for the distilleries, of which there are a number. Fishing is another staple occupation of the colony, and an attempt is being made to establish an export market in salted fish. The native fishermen use a peculiar type of craft called a pirogue. It is shaped like a Venetian gondola and is punted along by means of a bamboo pole. It is ideally suited for the shallow waters inside the reef, and most of the transport is carried on by these boats. Always, there are dozens of them skimming across the lagoon, and handled expertly they travel quite fast.

Most of the fish are caught inside the lagoon and by rather an interesting method. Square baskets made on the same principle as an English lobster pot are filled with bait and left on the sand at low tide ; they are weighted to make them float a few feet below sea-level. The tide rises, and the fish follow the tide into the lagoon, and there is nearly always a good haul. The fishermen have larger baskets which they let down into the deeper water fringing the reef. When they return with their catch, they blow on horns to

warn people to hurry if they wish to buy. Trade and communication between the islands is carried on by means of a fleet of sailing schooners; there are always several of these picturesque ships anchored off Port Victoria, and it is a beautiful sight to see them in full sail. They are captained by Creoles and manned by natives, and visit even the furthest islands 700 miles away.

One of the most interesting products of the Seychelles is the amazing Coco de Mer which grows on Praslin, thirty miles from Mahé. Nowhere else in the world is this palm found growing indigenously. I travelled to Praslin in a small motor-boat and the wonderful sight of these growths fully compensated for the tossing we received by the Indian Ocean rollers. The Coco de Mer palm shoots up to a height of 130 feet, straight as a mast, and is covered with tufts of fan-like leaves. Its fruit is a huge double coconut about three times the size of a football. This nut has found its way into nearly every museum of note in the world. The Coco de Mer grows in one valley called the Valley of Coconuts and outside this particular gorge they do not reach the same dimensions. Walking down that wild valley under the shadow of those bizarre palms, it is easy to imagine that one is in another world.

A fisherman punting a native pirogue. The square fish-baskets are seen in this photograph.

Turtling is a favourite diversion in the Seychelles. It is carried on largely round Aldabra and Assumption Islands. The turtles are harpooned, or turned on their backs as they come up the beaches to dig holes in the sand where they lay their eggs. Once on their backs they are helpless. The produce from these amphibians is the calipee, a cartilaginous substance which connects the bones under the shell; it is dried in the sun and shipped home to be made into soup. The islanders eat the turtle flesh and its taste is not unlike veal. I ate this meat nearly every day, and also turtle eggs. Tortoiseshell can only be obtained from the hawksbill turtle, a much rarer species than the ordinary green turtle.

I mentioned before that the Seychelles were neglected by the outside world; this, I feel, will not continue for much longer. Once their wild beauty is discovered by the tourist their popularity is assured. The climate is healthy and on Mahé, malaria is unknown. In order to grasp more clearly the physical features of these islands it is necessary to understand the lie of the land under the water-level. The archipelago can be divided into four groups, the Mahé group, the Amirantes and Aldabra groups, and the Saya de Malya Bank.

The Mahé collection are surrounded by an area of comparatively shallow water, the average depth being about thirty fathoms. All the islands of this group, except two, are of granite formation. This granite structure forms the only exception to the otherwise universal rule that Oceanic islands are of recent volcanic formation. It is not unlikely that land once extended between India and the African mainland, and that the granite islands are the mountain tops of that ancient continent, supposed to be submerged by the disturbances when the Rift valley of East Africa was formed. The Amirantes have very different characteristics; they comprise a number of small islands and atolls which rise only ten feet above sea-level. They are of coral formation, and lie 120 miles south-west from Mahé. Most of them are guano producing.

The Aldabra group lie 500 miles south-west of Mahé, and are also of coral formation. They are extremely hot, and contain impenetrable mangrove jungles. The Saya de Malya Bank does not rise above the sea, but it is known to shelter one of the biggest supplies of fish in the world. Ships hardly ever venture near it.

Returning to Mahé, it is necessary to mention the coral reef on the eastern side. There you find a world of rare beauty and charm. Tiny coloured fish flash by like shooting stars. Spiky sea-urchins, black and yellow, hide in the hollows. Coral of varying colour abounds, white, pink, and forget-me-not blue. Algae of all kinds cover the rocks. Black sea slugs alone are ugly.

Book Reviews.

Darwin. By R. W. G. HINGSTON. (Duckworth. 2*s*.).

If Cleopatra's nose had been of a different shape, it has been said, the course of history would have been altered. If Professor Henslow had not happened to be in touch with Captain Fitzroy, Darwin might have been a country clergyman and never have produced the *Origin*. And if he had not inherited means, he might have been obliged to devote his energies to earning a living, a necessity which so often diverts talent. In either case it is improbable that we should have had, not only the *Origin*, but the rest of his works which alone were enough to make his name immortal. It is remarkable that seven years at school were wasted, that two more at Edinburgh proved his ineptitude as a doctor, and that Cambridge hardly seemed likely to perfect him for the Church. The massive brain ripened slowly, and but for the magnificent experience of the *Beagle*, might never have ripened at all.

Major Hingston, in this worthy addition to the Great Lives series, traces the development of Darwin's intellect and ideas, with a vivid picture of his methods and of his sterling character. The book appears well at this time, when there is a tendency to discredit the great Victorians. For Darwin and his associates not only enjoyed commanding intellect, but had marked nobility of character. His modesty, freedom from self-interest and jealousy, his splendid dignity when all the curs of Britain were yapping at his heels, his eager acceptance of objections seriously brought forward in the search for truth, his recognition of the weak points in his own work all illustrate the greatness of the man. His associates were worthy of him—Wallace the co-discoverer who sank himself, Huxley the dashing champion, Lyell the founder of modern geology, and Hooker the father of modern botany, who lived to speak at the centenary of Darwin's birth. Major Hingston writes of them: "Their intellectual greatness went without question, for each stood supreme in his own sphere of work. But even more striking was their modesty and simplicity of character, their absence of self-seeking or desire for personal aggrandisement."

Darwin's work was little understood in the days of the storm. It was not only the layman who thought he derived men from monkeys, but even such prominent though hopeless opponents as Bishop Wilberforce. So, too, to-day it is hardly realized by the public that, while much of the detail of Darwin's work has now fallen by the wayside, his outstanding contribution to humanity remains for ever, that he gave us a new mode of thought. A marked feature of Darwin's character was his pertinacity which enabled him, despite poor health, to produce such an immense volume of high-class work. He spent eight years preparing the *Variation* and four on *The Descent of Man*. He was eight years preparing his work on barnacles, in which he learnt to curse the very word "species." His struggles with the dilemma, "are there a hundred species here, or only one?" have been a source of comfort to every taxonomist who has wrestled with the task of establishing system out of chaos. *The Expression of the Emotions* appeared in 1872 on foundations laid in 1839. His experiments on cross-fertilization of plants occupied eleven years, and the *Origin* itself was the result of nineteen years' preliminary work. It is characteristic of his thoroughness that he regarded it as an abstract. His last work, on earthworms, was based on material collected over forty years and, strangely enough, its sales surpassed even those of the *Origin* itself.

Major Hingston has resisted the temptation to obtrude his own views. Where he attributes the breakdown of Darwin's health to psychological foundation he is probably confusing effect with cause. The account of the drama of the historic meeting at Oxford might have been made even more vivid, when Bishop Wilberforce rashly provoked Huxley with such questionable taste. Huxley turned to his neighbour and astonished him by exclaiming with glee, "The Lord hath delivered him into my hands."

The Birds of Tropical West Africa. Vol. III. By D. A. BANNERMAN. (Crown Agents for the Colonies. 22*s*. 6*d*.).

The main characteristics of this great official contribution to African ornithology have already been discussed in *Discovery* in notices of the previous volumes. With this third volume Mr. Bannerman completes his account of all those families which are not included in the Passeriformes—which, of course, is much the largest Order, in more senses than one. The particular attraction of this volume is that it deals with the owls, the touracos, the cuckoos, the nightjars, the swifts, the bee-eaters, the hoopoes, the kingfishers, the rollers, the hornbills, the trogons, the barbets, the honey-guides, and the woodpeckers—a group which stands out on account of its brilliance of plumage and eccentricity of habit. In fact it seems possible that some people who hardly know a penguin from a crow may find their imagination captured by some of the gorgeous coloured plates of bee-eaters, rollers, kingfishers and others with which this volume is illuminated. The ornithologist will be encouraged to observe how the stimulus given by the earlier volumes to a study of the habits of West African birds is already bringing in a growing number of useful notes.

Some of the more interesting points to which attention ought to be drawn are the notes on relations between different animals (such as hornbills following armies of driver ants in order to capture disturbed insects, bee-eaters following bustards and human beings for similar reasons, or the extraordinary habit from which the honey-guide gets its name); the alleged breeding of grey-throated barbets all the year round; the suspected snipe-like drumming in the air of the lyre-tailed honey-guide; and several notes on territory, colonial nesting and migration in the tropics, where data on these points are still scarce. A point of a different type is the emphasis on the harm caused to some of the most beautiful forms by the excesses of the plumage trade. We may hope that the publication of this verdict under official auspices will be followed by action within British territories, and by agreements elsewhere to secure the dwindling stock of threatened species from further destruction.

There is one appeal which ought to be made to Mr. Bannerman and to other authors of standard works on tropical ornithology. Can nothing be done to label the unfortunate birds of these regions with less ugly and cumbersome titles? Beachcomber himself, determined to parody ornithology, could hardly have beaten such names as the "Black-throated Hairy-breasted Toothbill," the "Cameron Highland Melancholy Woodpecker," the "Greater Naked-faced Barbet," the "Ivory Coast Sharp-billed Honey-guide," and some of the other horrors encountered in this volume. Although, of course, Mr. Bannerman is not guilty of starting this fashion, future ornithologists and all humane persons will be grateful to him if, in succeeding volumes, he can throw the great weight of his authority in favour of simpler and less uncouth names. It can be done. For example, we are told that the red-billed dwarf hornbill has earned by its call-note the Bulu name of "Kolong." The Bulu seem to have a

better taste in bird-names than we have. Many of these species have settled and appropriate native names; is it absolutely necessary to rechristen them with clumsy circumlocutions? If Mr. Bannerman will do what he can in this direction he will add to our increasing debt to him.

Malekula. A Vanishing People in the New Hebrides. By A Bernard Deacon. Edited by Camilla H. Wedgwood. With a Preface by A. C. Haddon. (Routledge. 42*s*.).

Mr. Deacon, an ethnologist of great promise, died before he was able to compile his own account of life in Malekula; but his field notes have been ably edited by Miss Wedgwood, in spite of the limitations inevitably placed on anyone undertaking such a task. Deacon left sufficient material to enable Miss Wedgwood to present a great deal of valuable, and in many cases detailed, information about this interesting race. Something was already known of the ritual life and of the artifacts of the peoples of Malekula, the second largest island of the New Hebrides group. But Deacon was the first to make a detailed study of the social, economic and political life of the natives. Moreover previous records told only of the people inhabiting the south-eastern part of the island; about the people of the west and north nothing was known. As Miss Wedgwood points out, this is still true to some extent of the extreme north—that is, of the tribe or tribes called by Europeans the Big Nambas—and of the inland districts. But the year which Deacon spent in the north-west and the region round south-west Bay resulted in a mass of anthropological material which reveals much about the natives of these two regions.

Deacon spent a year in Malekula and his book reveals something of the difficulties under which he worked. The climate is tropical and has all the attendant ills of malaria-infected mosquitoes. Instead of finding a living society Deacon discovered at South-west Bay only relatively few survivors of various districts. A complete study of the life of a living society was thus out of the question. The tremendous death-rate in the island was a continual bar to progress. Deacon was obliged to gather his information largely by questioning the old men, but the death-rate was of such proportions that the work was largely "a race between the speed of note-taking and the speed of the diffusion of epidemics." It says a great deal for Deacon's skill as an ethnologist that he was able in these circumstances to collect as much information as he did.

The island of Malekula is divided into a number of small districts which are distinct political units and are characterized by differences in dialect, in social structure, material culture and economic and ritual life. In the south-west alone there were originally five distinct units, but to-day no single village remains in any of these, with one exception, "whither the few surviving members of the other districts have gone to die." The people of Malekula resemble in their general physical characteristics the bulk of the Melanesian-speaking peoples. They are of medium height with chocolate-coloured skins and woolley hair. It is noted that the division of a relatively small tract of land into a number of politically and culturally distinct units seems to be characteristic of Melanesia, and in particular of the New Hebrides. But there is in all parts of the island the same form of garden tillage and the practice of drawing geometrical figures in the sand. Deacon recognized the existence of two main cultural areas and these he distinguished by the types of dress worn by the women—the mat skirt and the fringe skirt. Interest in pigs is described as the keynote of Malekulan life. The native is thus primarily concerned to have an abundance of vegetable food, and by judicious borrowing and lending to increase the number and value of his pigs.

Added to the fact of depopulation by disease is the natives' rapid degeneration from alcohol. We may therefore be grateful for Deacon's book, compiled while there was still some chance of serious study.

Historical Essays in Honour of James Tait. Edited by J. G. Edwards, V. H. Galbraith, E. F. Jacob. (Manchester University Press. 25*s*.).

Dr. James Tait's high reputation as a mediæval historian is well exemplified by the inspiring volume which his many friends have printed for him, as a gift on his seventieth birthday. It contains thirty-two papers by as many scholars, young and old, English and foreign, on subjects connected for the most part with institutional and local history to which Dr. Tait has devoted his life. He was for many years the colleague of the late Professor Tout at Manchester, and their collaboration and example have made the Manchester history school famous. Dr. Tait is specially known to students for his sound and accurate work on the early history of boroughs, but he has also ranged widely over the Middle Ages, and he has been the inspirer of many a valuable piece of research by younger men and women.

This *Festschrift*, as the Germans would call it, is for the most part highly specialized, but no serious student of mediæval history can afford to overlook it. The most interesting paper is Professor A. F. Pollard's critical examination of Sir Thomas More's unfinished life of Richard III., which he shows to have a romantic study, incorporating a good deal of oral testimony, but also abounding in obvious errors and having no claim to be regarded as serious history. Professor Pollard admires More's prose, but declines to be dazzled by his high reputation in other fields. Professor Edward Fiddes describes the growth of the University movement in Manchester up to 1903. Professor E. F. Jacob draws upon the muniments of All Souls', Oxford, to give minute details about the building of the college in 1438-1443; he can tell us where the stone, timber and other materials came from, where they were worked, how the workmen were paid, how the chief sculptor was John Massingham, who received 4*s*. 8*d*. a week with board and lodging, and carved an image of the Trinity, which he afterwards painted and covered with gold leaf—altogether a most instructive glimpse of fifteenth-century England. Dr. Allen Mawer writes very suggestively on "The Study of Field-names in relation to Place-names," and Dr. Ekwall, in "Names of Trades in English Place-names," collects many curious instances. The late Professor Waugh's paper on "Joan of Arc in English Sources of the 15th Century" shows that the Maid attracted singularly little notice in this country after her death; the popular memory then, as now, was doubtless short.

Those who concern themselves with Anglo-Saxon institutions will be specially interested in Mr. G. J. Turner's article on "Bookland and Folkland." Forty years ago Vinogradoff propounded a new explanation of these terms which contradicted that of Stubbs. Now Mr. Turner would have us believe that the Russian scholar was wrong and Stubbs right. Certainly the old explanation now revived is much simpler. Bookland, we are told, was land held by a charter—usually by a thane or manorial lord. Folkland, on the other hand, was the ancient demesne of the Anglo-Saxon kings, and perhaps also the lands leased to Crown officials in return for services. This was a clear-cut distinction. Another notable contribution is Professor Powicke's

account of Loretta, Countess of Leicester, who, widowed in her early twenties, became a recluse at Halkington, near Canterbury, and did much to encourage the Franciscans when they came to England. It illumines one side of the great religious revival of the thirteenth century.

Encyclopaedia of Psychic Science. By NANDOR FODOR. With a Preface by SIR OLIVER LODGE. (Arthur's Press, London. 30*s*.).

Dr. Fodor has done good service to all who are interested in psychical research, and as the first work of its kind this encyclopædia deserves a hearty welcome. The author's research must have involved immense reading in many languages, and few could have done it at all; fewer still as well, as Dr. Fodor has done it in a language not his own.

As a work of reference it is convenient, for nowhere else can one find such excellently condensed accounts of all the important happenings and subjects grouped under the title of psychical research. The method of treatment is historical, so that in every case the proper perspective is at once attained by the reader. Such subjects as dreams, mesmerism, sleep and somnambulism will be found in this work, as well as the more strictly psychic subjects. The number of facts, dates and amount of knowledge that have been gathered together in these pages is prodigious. The value of the encyclopædia is greatly enhanced by its possessing 27 pages of the most perfectly reproduced photographs which we have seen. Some of the portraits are rare and historically interesting. Some literary material included in the encyclopædia is of the greatest convenience to psychical research workers as, for instance, the synopsis of the contents of all the volumes of both the American Society for Psychical Research and those of the British Society. Here and there on the physiological side there are signs of weakness, and several personal names are missed.

Lettres sur les Anglois et les Francois et sur les Voiages (1728). Par B. L. de MURALT. Edited by CHARLES GOULD. (Champion, Paris.).

This is No. 86 of the interesting and valuable series, "Bibliôthèque de la Revue de la Littérature Comparée." Muralt's letters are well worth republishing and editing. Mr. Gould, who has recently joined the teaching staff of the University of Bristol, is to be congratulated on a successful piece of work. It contains a sketch of the life and an estimate of the character of Muralt; a critical discussion of the originality and significance of the letters; a history of the text and the various editions; and a study of the influence of the letters. Voltaire was attracted and interested; Rousseau apparently owed a good deal to Muralt's letters and religious views—part of the celebrated "Profession of Faith of the Savoyard Vicar" seems to be inspired by Muralt, as also some of the educational theses of "Emile." The great Haller admired the "Lettres" and took them with him as a sort of guide-book when he visited England in 1727, quoting them in his "Tagebücher." Towards the latter end of the century Lavater was finding the "Lettres" suggestive and helpful. They were well known in France, and contributed to the wholesome, cultured cosmopolitanism of Western Europe in the eighteenth century.

Béat Louis de Muralt was the eldest of five sons of a Bernese aristocratic family, born in 1665. Like many of the Swiss gentry he took service as an officer in the French army, as his father had done before him. But he did not remain long in the army, though he seems to have enjoyed his period of service well enough. On retiring, he went on his travels, in 1693. He was for more than a year in England, mostly in London, where he observed life as seen in the streets, coffee houses and theatres; and he was entertained by Sir William Temple at Moor Park. But he never went to Oxford or Cambridge, never saw the king, nor attended a race meeting. After returning to Switzerland he married and settled down on his estate in Berne, becoming a fervent pietist. For his religious opinions he was exiled for a long time to Neuchâtel. He died in 1749 at the age of eighty-four. The letters are written somewhat in the grand style. They are observant, but the author is not very critical of his own observations. They show the English as a very prosperous people compared with the Continental peoples whom Muralt knew; the English were also, he judges, particularly distinguished for *Bon sens*; but there was much profligacy. Extremely interesting accounts are given, for purposes of comparison, of French society. The letters on the voyages are philosophical, and are typical of the eighteenth century interest in nature and the curiosities of science.

These are excellent letters and can be recommended for students of the late seventeenth and eighteenth centuries, and indeed for any others who are attracted by good literature in the French tongue. They have much of the charm of the "Augustans," of the Age of Reason—its severity, its inquisitiveness, its humanity. Mr. Gould has done a service to scholarship in facilitating the use of this notable work.

An African People in the Twentieth Century. By L. P. MAIR. (Routledge. 12*s*. 6*d*.).

This book is uniform with Dr. Audrey Richards *Hunger and Work in a Savage Tribe*, and like that excellent work it was inspired by Professor Malinowski. It is a study on the spot of the impact of European ideas upon an African people, the Baganda, who possessed already an elaborate social system.

The author's main object was to discover how far the fundamental needs of society were served by indigenous institutions and how far their inevitable modification has dislocated the native system. The investigation is a matter of great importance, for our methods of governing alien, especially primitive, races is happily becoming increasingly based upon science.

The Days and Nights of Birds. By JACQUES DELAMAIN. Translated by MARY SCHLUMBERGER. (Gollancz. 6*s*.).

The original version of this book ("Les Jours et les Nuits des Oiseaux") has already been reviewed in *Discovery*. Mrs. Schlumberger's translation is entirely successful; she has succeeded in reproducing both accurately and attractively the lyrical beauty of the author's native tongue and his intimate observation. The author's earlier book, *Why Birds Sing*, at once achieved recognition in this country. We feel sure that this second book will increase M. Delamain's reputation not only among British ornithologists, but with the general reader.